

TIGER SHARK

User Manual

DIGITAL STEREO GENERATOR AND RDS/RBDS ENCODER

(Rev. 4.5 EN - International)



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TIGER SHARK ENGLISH USER MANUAL

THANK YOU FOR CHOOSE AXEL TECHNOLOGY TIGER SHARK!

TIGER SHARK MAIN FEATERS (FULL MPX + RDS/RBDS + LIMITER)

Digital Stereo Generator (MPX)

Dynamic RDS/RBDS encoder

- AGC input stage, Audio Limiter, Stereo Enhancer
- Automatic changeover between Analog, AES/EBU and external MPX input
- UECP compliant
- Dynamic ODA, TMC, EWS and IH services
- Advanced PS scrolling. PS, RT, PTY scheduler
- 8 GPI / 8 Relay interface.
- 3 serial connections to control and send messages
- RDS decoder for re-broadcasting messages
- Pc control software.
- Ethernet connection with SNMP protocol
- ASCII protocol
- TCP/IP server
- GPS Interface
- Incoming MPX detector stage
- Radio Automation Systems Interface
- RT+ Services Supported

TIGER SHARK-R MAIN FEATERS (ONLY RDS/RBDS CODER)

- Dynamic RDS/RBDS encoder
- Automatic changeover between Analog, AES/EBU and external MPX input
- UECP compliant
- Dynamic ODA, TMC, EWS and IH services
- Advanced PS scrolling. PS, RT, PTY scheduler
- 8 GPI / 8 Relay interface
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- RDS decoder for re-broadcasting messages
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- Ethernet connection with SNMP protocol
- ASCII protocol
- TCP/IP server
- GPS Interface
- Radio Automation System Interface
- RT+ Services Supported

THE STATE OF THE ART

Tiger Shark has been accurately designed to satisfy the most demanding requirements in FM Stereo generation and advanced RDS/RBDS encoding.

It is built with the best cutting-edge technology: surface-mount components and multi-layer circuit boards keep the signal path safe from any issue, providing the purest modulation quality. Its digital architecture guarantees long term reliability and easy firmware updates, directly on field or from remote.

Tiger Shark is a top-class RDS/RBDS and Stereo Generator machine.

It has been designed to provide every custom requirement if a structured FM network, especially managing advanced machine control and signal changeover, using a PC and webserver interface.

Tiger Shark supports the most advanced RDS dynamic services, including TMC, ODA, IH, TDC and EWS.

In addition to standard CENELEC methods, RDS programming has been enriched with larger PS and RT sets (also available in dynamic mode) with powerful scheduling capabilities.

GPS satellite receiver, such as our Sat Time Synchronizer, can broadcast local time info as part of the RDS data. RDS service carries also 4 IH (InHouse Application) remote controls, that can be used to start advertising breaks on distant networks, to split broadcasting areas, to activate / deactivate recorders etc..

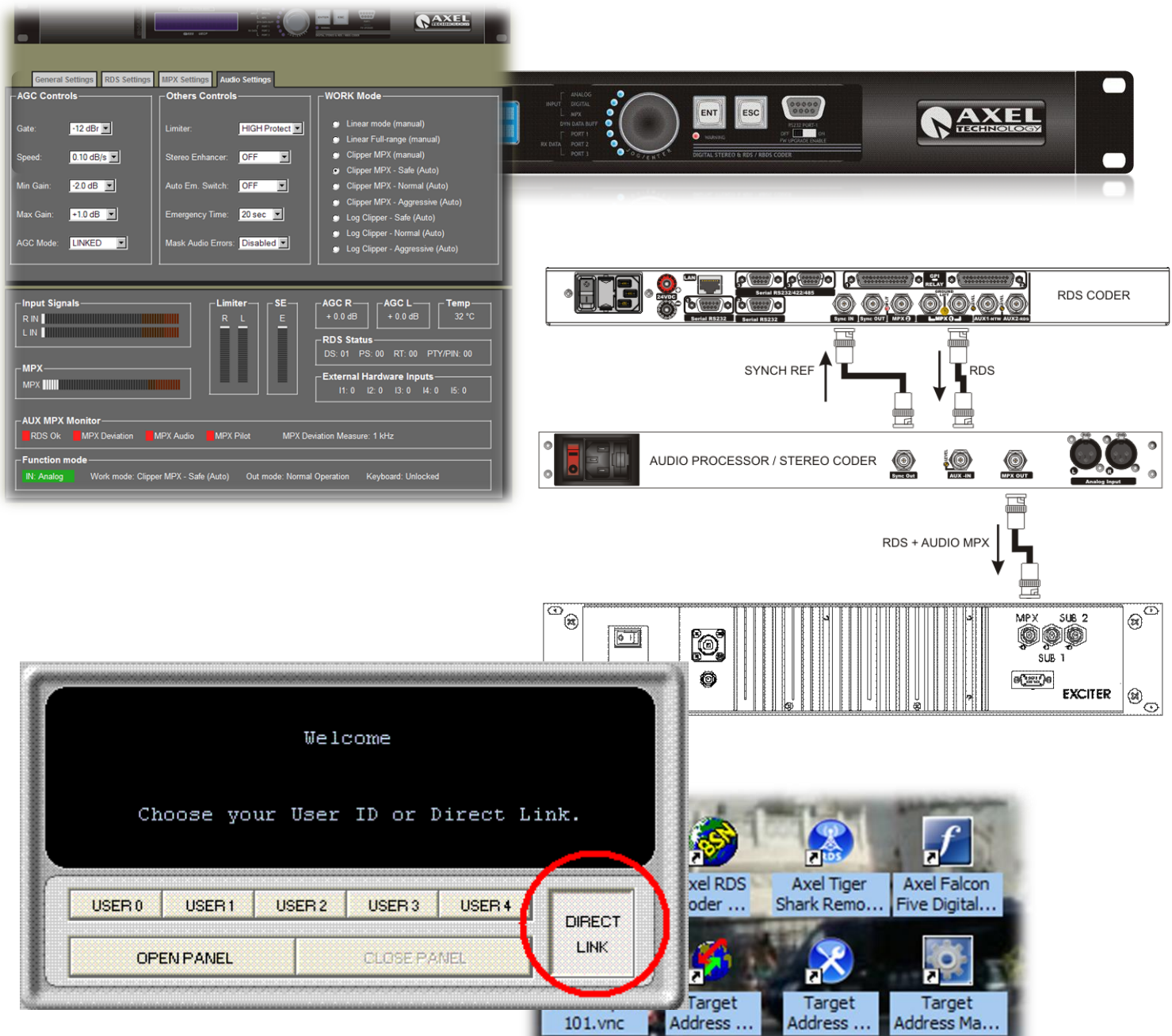
Tiger Shark communication features have been enforced with comprehensive remotecontrol via RS232, RS485, modem or TCP/IP: Its built-in, passwordprotected server is compatible with FTP, Telnet, SNMP, HTTP and UECF protocols. It can be easily interfaced to various Automation Systems and offers an ASCII protocol for broadcast song/artist information. In case of alarms, it supports SNMP alerting for automation systems, and eventually SMS notification (by a GSM modem connection).

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ENJOYNG USING ALL AXEL TECHNOLOGY PRODUCTS!



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1 SAFETY WARNINGS / ISTRUZIONI PER LA SICUREZZA

SAFETY WARNINGS

CONSIGNES DE SÉCURITÉ IMPORTANTES

ISTRUZIONI IMPORTANTI PER LA SICUREZZA

WICHTIGE SICHERHEITSHINWEISE

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

(Rel. 1.3)

1.1 FOREWORD

For your own safety and to avoid invalidation of the warranty all text marked with these Warning Symbols should be read carefully.



Information in this manual is subject to change without notice and does not represent a commitment on the part of the vendor.

The manufacturer shall not be liable for any loss or damage whatsoever arising from the use of information or any error contained in this manual, or through any mis-operation or fault in hardware contained in the product.

It is recommended that all maintenance and service on the product should be carried out by the manufacturer or its authorised agents. The manufacturer cannot accept any liability whatsoever for any loss or damage caused by service, maintenance or repair by unauthorised personnel.

2 SAFETY WARNINGS

The installation and servicing instructions in this manual are for use by qualified personnel only.

- **Read All Instructions.** All safety and operating instructions must be read before operating the product. They also must be retained for future reference, as it contains a number of useful hints for determining the best combination of equipment settings for Yr particular application.
- **Heed All Warnings.** All warnings on the product and those listed in the operating instructions must be adhered to.
- **Heat.** This product must be situated away from any heat sources such as radiators or other products (including power amplifiers or transmitters) that produce heat.

-
- **Power Sources.** This product must be operated from the type of power source indicated on the marking label and in the installation instructions. If you are not sure of the type of power supplied to your facility, consult your local power company. Make sure the AC main voltage corresponds to that indicated in the technical specifications. If a different voltage (ex. 110/115 VAC) is available, open the equipment closure and set the voltage switch on the main supply circuit, located behind the AC socket
 - **Power Cord Protection.** Power supply cords must be routed so that they are not likely to be walked on nor pinched by items placed upon or against them. Pay particular attention to the cords at AC wall plugs and convenience receptacles, and at the point where the cord plugs into the product
 - **Use only with a cart,** stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
 - **Lightning.** For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the AC wall outlet and the audio connections. This will prevent damage to the product due to lightning and power line surges
 - **Installation.** Configuration and installation should only be carried out by a competent installation engineer
 - **Cabling.** Using high quality wires, well protected. Make sure the cable integrity.



This symbol alerts you to the presence of dangerous voltage inside the closure – voltage which may be sufficient to constitute a risk of shock. Do not perform any servicing other than that contained in the operating instructions. Refer all servicing to qualified personnel



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



Do not change the voltage setting or replace the mains fuse without first turning the unit off and unplugging the mains cord



Make sure the AC main voltage corresponds to that indicated in the technical specifications.
THIS APPARATUS MUST BE EARTHED !



To avoid risk of fire use the correct value fuse, as indicated on the label stuck on the right side of the unit.



This apparatus uses a single pole mains switch and does therefore not separate the unit completely from the mains power. To completely separate from mains power (f.i. in the event of danger) unplug mains power cord. As the MAINS plug is the disconnect device, the disconnect device shall remain readily operable.

CONSIGNES DE SÉCURITÉ IMPORTANTES

- Lire ces consignes
- Conserver ces consignes
- Observer tous les avertissements
- Suivre toutes les consignes
- Ne pas utiliser cet appareil à proximité de l'eau
- Ne pas obstruer les ouvertures de ventilation. Installer en respectant les consignes du fabricant

- **Ne pas installer à proximité d'une source de chaleur** telle qu'un radiateur, une bouche de chaleur, un poêle ou d'autres appareils (dont les amplificateurs) produisant de la chaleur.
- **Ne pas annuler la sécurité de la fiche de terre**, la troisième branche est destinée à la sécurité. Si la fiche fournie ne s'adapte pas à la prise électrique, demander à un électricien de remplacer la prise hors normes.
- **Protéger le cordon d'alimentation** afin que personne ne marche dessus et que rien ne le pince, en particulier aux fiches, aux prises de courant et au point de sortie de l'appareil
- **Utiliser uniquement les accessoires spécifiés par le fabricant**
- **Utiliser uniquement avec un chariot**, un support ou une table spécifié par le fabricant ou vendu avec l'appareil. Si un chariot est utilisé, déplacer l'ensemble chariot–appareil avec précaution afin de ne pas le renverser, ce qui pourrait entraîner des blessures
- **Débrancher l'appareil** pendant les orages ou quand il ne sera pas utilisé pendant longtemps.
- **Confier toute réparation à du personnel qualifié.** Des réparations sont nécessaires si l'appareil est endommagé d'une façon quelconque, par exemple: cordon ou prise d'alimentation endommagé, liquide renversé ou objet tombé à l'intérieur de l'appareil, exposition de l'appareil à la pluie ou à l'humidité, appareil qui ne marche pas normalement ou que l'on a fait tomber.
- **NE PAS exposer cet appareil aux égouttures et aux éclaboussures.** Ne pas poser des objets contenant de l'eau, comme des vases, sur l'appareil



Ce symbole indique la présence d'une tension dangereuse dans l'appareil constituant un risque de choc électrique.



Ce symbole indique que la documentation fournie avec l'appareil contient des instructions d'utilisation et d'entretien importantes.



Avant de modifier le commutateur de changement de tension ou replacer le fusible il faut débrancher l'appareil de la prise électrique. Pendant son usage, l'appareil doit être branché à la prise de terre



Utiliser le fusible principal AC avec la valeur qui est indiquée sur l'étiquette collée sur le coffret.



Assurez-vous que la tension principale AC correspond à celle indiquée dans les spécifications techniques.



L'interrupteur d'alimentation interrompt un pôle du réseau d'alimentation excepté le conducteur de terre de protection. En cas de danger, débrancher le cordon d'alimentation. Parce que la prise du réseau de alimentation est utilisée comme dispositif de déconnexion, ce dispositif doit demeurer aisément accessible

3 ISTRUZIONI IMPORTANTI PER LA SICUREZZA

- Leggere le presenti istruzioni
- Conservare queste istruzioni
- Osservare tutte le avvertenze
- Seguire scrupolosamente tutte le istruzioni
- **Non usare questo apparecchio in prossimità di acqua**
- **Non ostruire alcuna apertura per il raffreddamento.** Installare l'apparecchio seguendo le istruzioni
- **Non installare l'apparecchio accanto a fonti di calore** quali radiatori, aperture per l'afflusso di aria calda, forni o altri apparecchi (amplificatori inclusi) che generino calore
- **Non rimuovere il terminale di connessione a terra sul cordone di alimentazione:** esso ha lo scopo di tutelare l'incolumità dell'utilizzatore. Se la spina in dotazione non si adatta alla presa di corrente, rivolgersi ad un elettricista per far eseguire le modifiche necessarie.
- **Evitare di calpestare il cavo di alimentazione o di comprimerlo,** specialmente in corrispondenza della spina e del punto di inserzione sull'apparato.
- **Utilizzare solo dispositivi di collegamento e gli accessori specificati dal produttore.**
- **Utilizzare l'apparecchio** solo con un carrello, un sostegno, una staffa o un tavolo di tipo specificato dal produttore o venduto insieme all'apparecchio. Se si utilizza un carrello, fare attenzione negli spostamenti per evitare infortuni causati da ribaltamenti del carrello stesso.
- **Scollegare l'apparecchio dalla presa di corrente** durante i temporali o quando inutilizzato a lungo
- **Per qualsiasi intervento,** rivolgersi a personale di assistenza qualificato. È necessario intervenire sull'apparecchio ogniqualvolta si verificano danneggiamenti di qualsiasi natura. Ad esempio, la spina o il cavo di alimentazione sono danneggiati, è entrato liquido nell'apparecchio o sono caduti oggetti su di esso, l'apparecchio è stato esposto alla pioggia o all'umidità, non funziona normalmente o è caduto.
- **Non esporre a sgocciolamenti o spruzzi.** Non appoggiare sull'apparecchio oggetti pieni di liquidi, ad esempio vasi da fiori.



Questo simbolo indica la presenza di alta tensione all'interno dell'apparecchio, che comporta rischi di scossa elettrica.



Questo simbolo indica la presenza di istruzioni importanti per l'uso e la manutenzione nella documentazione in dotazione all'apparecchio.



Non sostituire il fusibile o cambiare la tensione di alimentazione senza aver prima scollegato il cordone di alimentazione. L'APPARATO DEVE ESSERE CONNESSO A TERRA.



Sostituire il fusibile generale con uno di identico valore, come indicato sulla etichetta applicata sul mobile dell'apparato



Assicurarsi che la tensione di rete corrisponda a quella per la quale è configurato l'apparecchio



Questo apparato utilizza un interruttore di alimentazione di tipo unipolare e l'isolamento dalla rete elettrica non è pertanto completo. Per ottenere un isolamento totale (ad esempio in caso di pericolo), scollegare il cordone di alimentazione. Inoltre, poiché la spina di alimentazione è utilizzata come dispositivo di sezionamento, essa deve restare facilmente raggiungibile

4 WICHTIGE SICHERHEITSHINWEISE

- Diese Hinweise **LESEN**
- Diese Hinweise **AUFHEBEN**
- Alle Warnhinweise **BEACHTEN**
- Alle Anweisungen **BEFOLGEN**
- Dieses Gerät **NICHT** in der Nähe von Wasser verwenden
- **KEINE Lüftungsöffnungen verdecken.** Gemäß den Anweisungen des Herstellers einbauen
- **Nicht in der Nähe von Wärmequellen**, wie Heizkörpern, Raumheizungen, Herden oder anderen Geräten (einschließlich Verstärkern) installieren, die Wärme erzeugen
- **Die Schutzfunktion des Schukosteckers NICHT umgehen.** Bei Steckern für die USA gibt es polarisierte Stecker, bei denen ein Leiter breiter als der andere ist; US-Stecker mit Erdung verfügen über einen dritten Schutzleiter. Bei diesen Steckerausführungen dient der breitere Leiter bzw. der Schutzleiter Ihrer Sicherheit. Wenn der mitgelieferte Stecker nicht in die Steckdose passt, einen Elektriker mit dem Austauschen der veralteten Steckdose beauftragen
- **VERHINDERN, dass das Netzkabel gequetscht oder darauf getreten wird**, insbesondere im Bereich der Stecker, Netzsteckdosen und an der Austrittsstelle vom Gerät
- **NUR das vom Hersteller angegebene Zubehör** und entsprechende Zusatzgeräte verwenden.
- **NUR in Verbindung** mit einem vom Hersteller angegebenen oder mit dem Gerät verkauften Transportwagen, Stand, Stativ, Träger oder Tisch verwenden. Wenn ein Transportwagen verwendet wird, beim Verschieben der Transportwagen-Geräte- Einheit vorsichtig vorgehen, um Verletzungen durch Umkippen
- **Das Netzkabel dieses Geräts** während Gewittern oder bei längeren Stillstandszeiten aus der Steckdose **ABZIEHEN**.
- **Alle Reparatur- und Wartungsarbeiten** von qualifiziertem Kundendienstpersonal **DURCHFÜHREN LASSEN**. Kundendienst ist erforderlich, wenn das Gerät auf irgendeine Weise beschädigt wurde, z.B. wenn das Netzkabel oder der Netzstecker beschädigt wurden, wenn Flüssigkeiten in das Gerät verschüttet wurden oder Fremdkörper hineinfielen, wenn das Gerät Regen oder Feuchtigkeit ausgesetzt war, nicht normal funktioniert oder fallen gelassen wurde.
- **Dieses Gerät vor Tropf- und Spritzwasser SCHÜTZEN.** **KEINE** mit Wasser gefüllten Gegenstände wie zum Beispiel Vasen auf das Gerät **STELLEN**.



Dieses Symbol zeigt an, dass gefährliche Spannungswerte, die ein Stromschlagrisiko darstellen, innerhalb dieses Geräts auftreten.



Dieses Symbol zeigt an, dass das diesem Gerät beiliegende Handbuch wichtige Betriebs- und Wartungsanweisungen enthält.



Vor Änderung der Netzspannung oder Sicherungswechsel Netzkabel trennen.
Das Gerät muss für den Betrieb geerdet werden.



Hauptsicherung nur mit einer gleichwertigen austauschen
(s. entsprechende Etikette).



Vor Einschalten Netzspannungseinstellung am Gerät überprüfen bzw. anpassen.



Inpoliger Netzschalter. In Notfälle oder für Wartungsarbeiten Netzkabel trennen. Der Netzstecker fungiert auch als Trennelement muss deshalb zugänglich bleiben

5 INSTRUCCIONES IMPORTANTES DE SEGURIDAD

- **LEA** estas instrucciones
- **CONSERVE** estas instrucciones
- **PRESTE ATENCION** a todas las advertencias.
- **SIGA** todas las instrucciones
- **NO** utilice este aparato cerca del agua
- **NO obstruya ninguna de las aberturas de ventilación.** Instálese según lo indicado en las instrucciones del fabricante
- **No instale el aparato cerca de fuentes de calor** tales como radiadores, registros de calefacción, estufas u otros aparatos (incluyendo amplificadores) que produzcan calor
- **NO anule la función de seguridad del enchufe polarizado** o con clavija de puesta a tierra. Un enchufe polarizado tiene dos patas, una más ancha que la otra. Un enchufe con puesta a tierra tiene dos patas y una tercera clavija con puesta a tierra. La pata más ancha o la tercera clavija se proporciona para su seguridad. Si el toma corriente no es del tipo apropiado para el enchufe, consulte a un electricista para que sustituya el toma corriente de estilo anticuado
- **PROTEJA el cable eléctrico** para evitar que personas lo pisen o estrujen, particularmente en sus enchufes, en los toma corrientes y en el punto en el cual sale del aparato
- **UTILICE únicamente los accesorios especificados por el fabricante**
- **UTILICESE únicamente** con un carro, pedestal, escuadra o mesa del tipo especificado por el fabricante o vendido con el aparato. Si se usa un carro, el mismo debe moverse con sumo cuidado para evitar que se vuelque con el aparato
- **DESENCHUFE el aparato** durante las tormentas eléctricas, o si no va a ser utilizado por un lapso prolongado.
- **TODA reparación** debe ser llevada a cabo por técnicos calificados. El aparato requiere reparación si ha sufrido cualquier tipo de daño, incluyendo los daños al cordón o enchufe eléctrico, si se derrama líquido sobre el aparato o si caen objetos en su interior, si ha sido expuesto a la lluvia o la humedad, si no funciona de modo normal, o si se ha caído.
- **NO exponga** este aparato a chorros o salpicaduras de líquidos. NO coloque objetos llenos con líquido, tales como floreros, sobre el aparato .



Este símbolo indica que la literatura que acompaña a esta unidad contiene instrucciones importantes de funcionamiento y mantenimiento.



Antes de cambiar la alimentación de voltaje o de cambiar el fusible, desconecte el cable de alimentación. Para reducir el riesgo de descargas eléctricas, esta unidad debe ser conectada a tierra.



Remplaze el fusible con lo mismo, que corresponde a lo indicado en el panel del equipo.



Antes de encender, controlar que la línea de alimentación de voltaje corresponda a la indicada



El interruptor de alimentación es unipolar. En el caso de peligro, desconecte el cable de alimentación. Porque la clavija de conexión a red sirve por la desconexión de la unidad, la clavija debe ser ubicada en proximidad de la unidad

6 UNPACKING AND INSPECTION

Your equipment was packed carefully at the factory in a container designed to protect the unit during shipment. Nevertheless, we recommend making a careful inspection of the shipping carton and the contents for any signs of physical damage.

Damage & Claims

If damage is evident, do not discard the container or packing material. Contact your carrier immediately to file a claim for damages. Customarily, the carrier requires you, the consignee, to make all damage claims. It will be helpful to retain the shipping documents and the waybill number.

Save all packing materials! If You should ever have to ship the unit (e.g. for servicing), it is best to ship it in the original carton with its packing materials because both the carton and packing material have been carefully designed to protect the unit.

Under normal conditions no user maintenance or calibration are required. Internal links and preset controls may be set to configure the unit during installation. **Any service work required should be carried out by qualified service personnel only.**

We are able to offer further product support through our worldwide network of approved dealers and service agents.



To help us provide the most efficient service please would you keep a record of the unit serial number, and date and place of purchase to be quoted in any communication regarding this product.

The actual equipment Serial Number is indicated on the silver label stuck on the rear panel of the equipment closure.



Tools And Equipment Needed

Only standard technician's tools are required to install this equipment.

7 FIRST INSTALLATION RECOMMENDATIONS

7.1 POWER SUPPLY CABLE

A power supply cable of approx. 2 mt length is supplied with the device, which has a moulded IEC plug attached – this is a legal requirement.

The type of plug for the power supply depends on the country in which it is delivered.

If for any reason, you need to use this appliance with a different plug, you should use the following wiring guidelines in replacing the existing plug with the new one:

Earth	Green, or green and yellow
Neutral (N)	Blue
Live (L)	Brown

Supply cables should be laid in such a manner that one does not step or walk on them. They should not be squashed by any objects.

THIS EQUIPMENT MUST BE EARTHED.

The chassis is always connected to mains earth to ensure your safety: check your mains wiring and earthing before switching on.

7.2 AC MAINS VOLTAGE SETTING (230 V / 115 V)



BE SURE THAT THE UNIT IS SET TO THE CORRECT MAINS/LINE VOLTAGE FOR YOUR COUNTRY BEFORE PLUGGING IT INTO THE WALL OUTLET !

The actual Mains voltage is indicated on the label stuck on the equipment closure. Should the type of power at the operation location not be known, please contact your dealer or electricity company.



If, for some reason, the unit is to be operated at a mains input voltage which is different to that as supplied, you need to switch the voltage selector on the right side of the unit. You also need to replace the AC main fuse, according to information provided on the external label or on the Technical Specifications table at the end of this user manual.



CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, ALWAYS DISCONNECT THE AC MAINS CABLE BEFORE ALTERING THE CHANGE-OVER SWITCH. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

7.3 FUSE REPLACEMENT

The power supply socket has an integral fuse drawer containing the AC power fuse and a spare, both of the same value.



BEFORE REPLACING THE POWER FUSE, MAKE SURE YOU HAVE THE RIGHT TYPE OF FUSE FOR THE VOLTAGE TO BE PROTECTED.
USING WRONG FUSE TYPE WILL RESULT IN INSUFFICIENT PROTECTION.

Make sure that the power is switched off and the power cable is disconnected from the equipment.

- a. Open the fuse drawer using a small blade screwdriver.



- b. Replace the fuse located at the internal position



- c. Push the fuse socket back into the original position (a.)



Perform the set-up under static control conditions. Static charges are likely to completely destroy one or more of the CMOS semiconductors employed in the unit. Static damage will not be covered under warranty.

Basic damage prevention consists of minimizing generation, discharging any accumulated static charge on your body and preventing that discharge from being sent to or through any electronic component.



Uninsulated dangerous voltage are inside the enclosure, voltage that may be sufficient to constitute a risk of shock.

Always disconnect to AC Mains before removing the top cover

7.4 PROTECTION AGAINST LIGHTNING



Should the device be put out of action due to being struck by lightning or excess voltage, disconnect it from the power supply without delay. Do not reconnect until the device has been checked. If in doubt contact the technical support service.

Make sure there is suitable lightning protection to protect the device.
Alternatively you should disconnect all connectors from the device during a storm or when the device is going to be unsupervised or not used for a longer period of time.
These measures will protect against damage by lightning or excess voltage.

7.5 VENTILATION

The equipment will operate as a free-standing unit without requiring any special cooling arrangement. However, slots and openings in the product are provided for ventilation. They ensure reliable operation of the product, keeping it from overheating. These openings must not be blocked nor covered during operation.
YOU MUST LEAVE AT A MINIMUM ONE RACK UNIT OF EMPTY SPACE ABOVE THE EQUIPMENT TO ENHANCE VENTILATION AND TO GET A LONGER EQUIPMENT LIFE.



8 INTRODUCTION

AVAILABLE VERSION AND OPTION FOR TIGER SHARK

CODE#	MODEL	DESCRIZIONE
T-SHARK	TIGER SHARK	Digital stereo & RDS coder, stereo enhancer, AGC and lookahead limiter. UECP compliant. Analog ,AES/EBU and MPX inputs, automatic changeover. MPX Split. 6 Datasets. ODA, TMC, IH. Scheduler. Ethernet. Web Server. GPI. Relay OUT. IH embedde comand. Remote control. Automation and GPS interface.
T-SHARK-RDS	TIGER SHARK RDS	Digital RDS / RBDS encoder. 6 Datasets. UECP. ODA, TMC, IH services. Scheduler.Lan interface, Web Server, SNMP Agent. 8 GPI, 8 Relays. 4 Remote controls on IH. Remote control. Interface to GPS and radio automation systems.
T-SHARK-LITE	TIGER SHARK LITE	Digital stereo & RDS coder, stereo enhancer, AGC and lookahead limiter. UECP compliant. Analog and AES/EBU IN. Audio IN changeover. 6 Datasets. ODA, TMC, IH. Scheduler. GPI. Relay OUT. Remote control. Automation and GPS interface
T-SHARK-RDS-LITE	TIGER SHARK LITE RDS	Digital RDS coder. 6 Dataset. UECP. ODA, TMC, IH, RT, RT+. Scheduler PS, RT, PTY. 4 GPI, 4 Relays. Software for PC control..

TIGER SHARK Series FRONT



TIGER SHARK Series REAR



8.1 PRELIMINARY INFORMATION ABOUT THIS USER MANUAL



Some products features could be differents between Tiger Shark, Tiger Shark-R, Tiger Shark-Lite, Tiger Shark-R Lite. This user manual is refered to Tiger Shark full equipment. In case you want change your Tiger Shark-R or Tiger Shark-R Lite into a Tiger Shark full, please contact our sales dept.

9 GENERAL DESCRIPTION

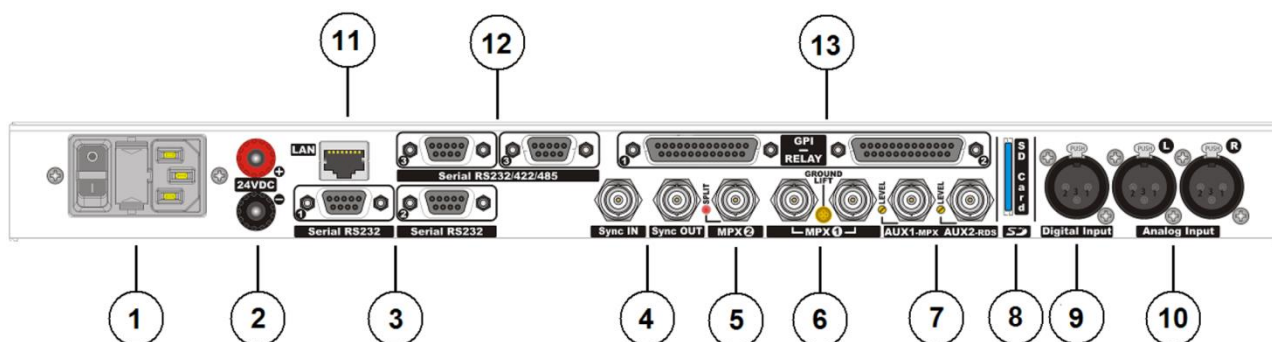
9.1 FRONT PANEL



N°	CONTRO NAME	DESCRIPTION
1	DISPLAY	Multifunction display showing the menu and the unit status
2	RX DATA LED ----- DYN DATA BUFFER LED ----- INPUT LED	<p>A blinking LED shows incoming data on each of the Serial Ports.</p> <p>A blinking LED shows data activity on Dynamic Data Buffers</p> <p>A fixed lighting LED shows the user-selected input.</p> <p>A blinking LED shows the <u>alternative</u> input in use (as picked-up by internal changeover).</p>
3	JOG-SHUTTLE:	for menu navigation and parameters modify. If it is pressed it has the same function as the [ENT] button (8)
4	LED DI WARNING	<p>a It identifies a General Alarm situation in the Tiger Shark. Warning conditions can be the following:</p> <p>b. Audio input signal saturation</p> <p>C Mpx Clipping</p> <p>d Firmware upgrade enabled (switch FW UPGRADE ENABLE to ON position (5) – SEE also APPENDIX 'FIRMWARE UPGRADE PROCEDURE')</p> <p>e Split mode Activated</p>
5	Fw Upg SWITCH	This switch makes Tiger Shark ready for Firmware upgrade. – SEE also APPENDIX 'FIRMWARE UPGRADE PROCEDURE'
6	ENT Key	[ENTER] by pressing this button, selection shown on the Display is confirmed
7	ESC Key	[ESC] by pressing this button, selection shown on the Display is discarded
8	RS232-1 Port	This Serial Port replicates the Port 1 on the rear panel. It is used for Firmware Upgrade and to connect to a Pc for software control.

Tiger Shark configuration menu access from the front panel can be limited with a password.
See Chapter FRONTAL PANEL ACCESS 'BLOCK' FUNCTION

9.2 REAR PANEL



N°	CONTROL NAME	DESCRIPTION
1	SWITCH, FUSE, SUPPLY	with power-on light. The power supply socket has an integral fuse drawer containing the AC power fuse and a spare, both of the same value (500 mA, for 230 and 110 Volts)..
2	24 VDC SUPPLY (optional)	<ul style="list-style-type: none"> 24Vdc Backup Supply, current required min 10A Automatic Switching in case of Main Voltage Fault
3	SERIAL PORT 1- 2 (see Appendix A for pin configuration)	<p>SERIAL PORT 1- 2 (see Appendix A for pin configuration)</p> <p>PORT 1: Standard Serial Port optoisolated for:</p> <ul style="list-style-type: none"> Communication with the PC (Pc Control Software) FirmWare upgrading upon (by shifting of the FW UPGRADE ON switch on the front panel). Connection with an external 56k Modem. UECP Data stream TMC stream <p>Port Setup (Status Enabled-Disabled, Baud Rate, Link mode) is done by menu on Front Display.</p> <p>Port Access Rights are configured from the PC Control Software in the “Access Rights” page.</p> <p>COM1 port is replicated both on Front and Rear Panel. Pay attention: do not connect both at the same time!</p> <p>PORT 2: Standard Serial Port optoisolated for:</p> <ul style="list-style-type: none"> Communication with the Pc (Pc Control Software) UECP Data stream TMC stream
4	SYNCH-IN SYNCH-OUT	<p>SYNCH-IN</p> <ul style="list-style-type: none"> “Synch In” Input is available only in the RDS version. It must be enabled from the Menu. In the Pc Software: RDS SETTINGS Window put RDS SYNC to EXTERNAL. In the Front Panel Menu: RDS MODULE SETUP -> RDS SYNC -> External <p>SYNCH-OUT</p> <ul style="list-style-type: none"> Synch accepted signal: TTL 19kHz, “0” state < 0.5V ; “1” state >2V It is possible to synchronize RDS from an external MPX signal using AUX inputs

		SYNCH-OUT <ul style="list-style-type: none"> Available only in the MPX/LIM/RDS version Disabled by Default. It can be enabled from the Menu. In the Pc Software: MPX SETTINGS Window Flag "Sync Out" In the Front Panel Menu: MPX MODULE SETUP -> Output Sync -> Enabled Signal Available: TTL 19kHz, 5Vpp, SquareWave.
5	MPX-2 OUTPUT	Additional output that can be switched between different sources
6	MPX-1 OUTPUT	Main Tiger Shark output, with associated passive mirror output.
7	AUX-1 and AUX-2	Auxiliary Inputs for Network e RDS Carrier Injection (also known as SCA Input-1 and SCA Input-2)
8	SD CARD SLOT	A built-in Mp3 player from SD Card is available as an option and may replace either the Analog or the Digital input
9	AES/EBU DIGITAL AUDIO INPUT	Digital Audio Stereo input for internal Stereo coder. That input can be selected either manually or automatically (by input changeover stage) – see Relevant Chapter.
10	ANALOG STEREO INPUT	Analogic Stereo Input for internal Stereo coder. That input can be selected either manually or automatically (by input changeover stage) – see Relevant Chapter.
11	ETHERNET SOCKET	The Tiger Shark features a built-in Web Browser and a SNMP agent.
12	SERIAL PORT 3 (see Appendix A for pin-out):	<p>Available as an option on the RS232 or RS485 version, optoisolated, used for:</p> <ul style="list-style-type: none"> Communication with the Pc (Pc Control Software) UECP Data stream TMC stream Communication to Radio Automation Systems (see APPENDIX for Ascii Parser for Dynamic RT and PS Scrolling Creation) Connection to an external GPS Receiver for CT reference and for DGPS service <p>Port Setup (Status Enabled-Disabled, Baud Rate, Link mode) is done from front panel menu.</p> <p>Port Baud Rate is not configurable independently but follows the settings of Port 1.</p> <p>Port Access Rights are configured in the PC Control Software from "Access Rights" page.</p> <p>For RS485 settings, see APPENDIX A</p>
13	GPI PORT / RELAY OUTPUT	Tiger Shark features 8 GPI input (optoisolated) and 8 Relay output (clean contact closures), fully assignable. See APPENDIX A for GPI port pin-outs.

9.1 THE INTERNAL CLOCK

Equipment internal **Clock** is powered by a *SuperCAP (capacitor)* instead of a traditional battery. The capacitor keeps the clock operating and protects the system memory to prevent the loss of stored programs during power failure around one week long (depending on the environmental conditions).

Capacity charge needs at least 30' of normal operation.

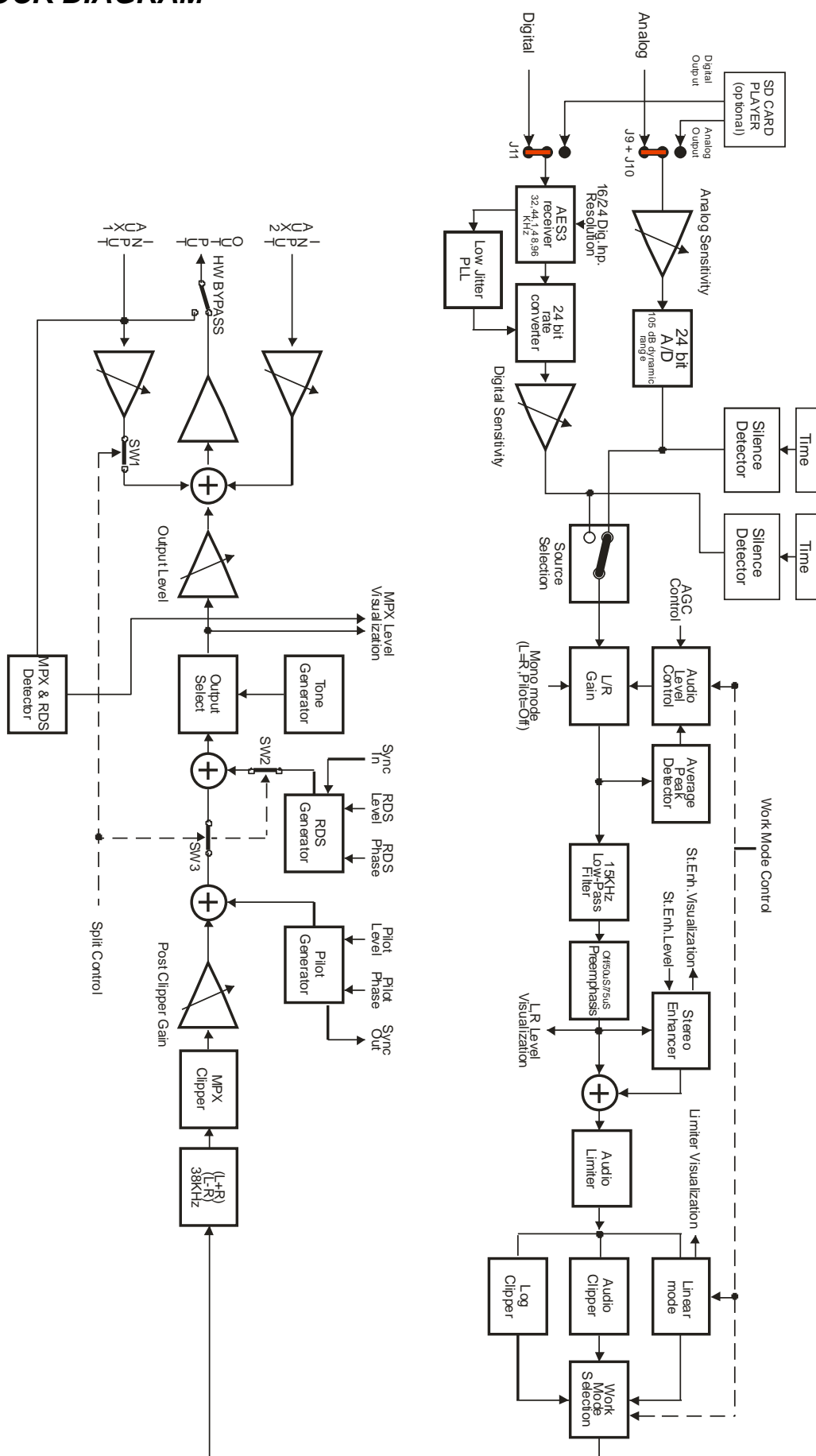
RDS parameters and relevant settings are stored on a non-volatile memory (in order to save data integrity even in the event the coder is not used for long periods).

Clock tolerance might amount to about 1 sec per day (it strictly depends on environment conditions).

In the event the SuperCap gets completely discharged, the clock will stop and You **will always need** to synchronize it again to the Pc clock using the Axel Tiger Shark Remoter /General Settings window).

Scheduler tool for RDS services stops when internal clock is freezing.

10 BLOCK DIAGRAM



11 FRONT PANEL OPERATION

As already mentioned, the user interface consists of a front panel-mounted jog-wheel, two buttons and an LCD screen. The LCD screen displays menus, parameter settings and several bargraphs (Level Meters or processing activity).

The menus are used for the processing parameters adjustment.

Rotating the jog-wheel lets you browse up or down through menus and parameter choices.

Pressing the jog-wheel (called “clicking”) selects the blinking menu item or parameter choice. When editing the parameter values, rotating the jog-wheel adjusts the parameter’s value up (by rotating CW) or down (CCW).

Once the desired value is reached, clicking the jog-wheel twice saves the value and returns the display to the upper menu level. You can return to the upper menu without saving by pressing the *Quit* key or by choosing the ‘quit’ option.

Thus pressing (or clicking) the jog-wheel serves, depending upon the LCD screen status, as an Enter, Select or Return command.

Please note that when a new value is only displayed – even blinking – it is immediately loaded into the equipment processing so that the user can get a real time response.

Enter function is achieved by pressing ‘Enter’ button, too.

Quit/Return function is achieved by pressing ‘Quit’ button, too.

It is useful to remark that you can access all the menu settings and parameters also in a faster and more comfortable way through the supplied PC control software (Tiger Shark Remoter), which allows an easy and effective remote monitoring and control, too. When the Tiger Shark control is taken by the PC application in a bidirectional mode (see Chapter 10), any access to the menu via the front panel keys is not allowed and the message “Remote Pc Host in Control” is displayed.

NOTE: The front panel menu allows only RDS signal level and phase setting. RDS messages programming and all the other related facilities requires the supplied Pc control software – see Chapter 14.

Any access to the Tiger Shark menu via the front panel keys can be blocked.

11.1 THE MENU TREE

The menu tree is shown on the next pages. It has all twelve of the possible main menu items listed along the left side. The branching sub-menus and parameters are connected in the order they are encountered in the menu system.

Note: each version has its own Menu Tree specific to that model. Yr current version might therefore do not show all the items above described. The diagram here above displays the complete Tiger Shark menu – please refer to the table on Introduction chapter for Optional feature list.

To save the changes, firstly press Enter to get the Save function and then a second time to confirm

Press Quit to escape the menu without saving and get the upper menu level

Press Quit to get the upper menu level.

--	MAIN PAGE	(Time expressed in Hours and Minutes; Date expressed DD-MMM-YYYY)		
--	RDS Monitor Page	(DataSet Active, PSN Active, RADIO TEXT Active, PTY Active)		
--	INPUT Monitor Page	(L / R Audio Input Levels)		
--	MPX Monitor Page	(MPX Signal Level)		
--	LIMITER Monitor Page	(AGC Level + LIMITER type)		
--	Input Module Setup	--	--	Right Gain -- +/-12 dB (0.1 dB step)
			--	Left Gain -- +/-12 dB (0.1 dB step)
			--	Analog Sens. -- 15 dBm to - 9 dBm (0.1 dB step)
			--	Digital Sens. -- 0 dBFs to - 24 dBFs (0.1 dB step)
			--	Signal Input -- Analogic / Digital / MPX
			--	Resolution -- 16 / 24 Bits Resolution
			--	Post (Clipper) Gain -- - 6 dB to + 6 dB (0.1 dB step)
--	Mpx Module Setup	--	--	Pilot Level -- Off / - 25 dB to - 15.5 dB (0.1 dB step)
			--	Pilot Phase -- - 12 Deg to + 12 Deg (1 Deg step)
			--	Preemphasis -- Preemphasis Off / 50 uSec / 75 uSec
			--	Mpx Level -- - 9 dBm to + 15dBm (0.1 dB step)
			--	Output Mode -- Normal / Peak Reference Tone
			--	Mpx mode -- Normal (Stereo) / Mono (Left Input)
			--	Output Sync -- Output Sync Enabled / Disabled
--	Rds Module Setup	--	--	Rds Level -- Off / - 43.9 dB to - 20.0 dB (0.1dB step)
				[0 to 1.2 Vpp, 5 mVpp step]*
			--	Rds On/Off -- Rds Signal On / Rds Signal Off
			--	Rds Phase -- - 120 Deg to + 120 Deg (1 Deg step)
			--	Rds Sync* -- Internal / External (Auto)
			--	Rds Mode -- Uecp Standard / Custom Uecp Extended
			--	Rds On Aux -- Rds disabled / Rds enabled
--	Limiter Module Setup	--	--	Work Mode -- Linear Mode (manual) / Linear Full Range (Man) /
				Clipper Mpx (manual) / Clipper Safe (Auto) / Clipper
				Norm (Auto) / Clipper Aggr (Auto) / LogClip Safe
				(Auto) / LogClip Norm (Auto) / LogClip Aggr (Auto)
			--	AGC Gate Thr -- - 18 dBr / - 12 dBr / - 6 dBr / - 3 dBr
			--	AGC Mode -- Unlinked Mode / Linked Mode
			--	AGC Speed -- 0.05 / 0.10 / 0.15 / 0.20 dB/sec
			--	(Stereo) Enhancer -- Effect Disabled / Low / Normal / High
			--	Em. Switch -- Em. Switch Disabled / Analogic / Digital / MPX
			--	Limiter -- Disabled / Level 1 Hi Protection / Level 2 Low Protect
			--	MaxPosGain -- 0.0 to 12.0 dB, 0.1 dB step
			--	MaxNegGain -- - 12.0 to 0.0 dB, 0.1 dB step
--	Data Port 1 Setup	--	--	Port -- Port Enabled / Disabled
			--	Baud Rate -- 2400 / 4800 / 9600 / 19200 / 38400 Baud rate

		--	Link Mode	--	Unidirectional / Bidirectional Auto / Bidirectional Req	
--	Data Port 2 Setup	--	--	Serial Port	--	Port Enabled / Disabled
			--	Baud Rate	--	2400 / 4800 / 9600 / 19200 / 38400 Baud rate **
			--	Link Mode	--	MonoDirectional / Bidirectional
--	Data Port 3 Setup	--	--	Serial Port	--	Port Enabled / Disabled
			--	Link Mode	--	MonoDirectional / Bidirectional
--	System Information		--	Ind. Address	Site Address, Encoder Address	
			--	Temperature	Temperature	
			--	Ext Inputs	IN1 (O/1), IN2 (O/1), IN3 (O/1), IN4 (O/1), IN5 (O/1)	
			--	FW Version	Firmware version	
			--	FW Code	Firmware code (13 alphanumeric characters)	
			--	Tcp / Ip Addr.	Tcp / Ip address (IP address)	
			--	Tcp / Ip Port	Tcp / Ip Port	
			--	Tcp / Ip S.Mask	Tcp / Ip SubNet Mask	
		--	IP Gateway	Gateway IP Address		

* enabled in the RDS version only

** set to 38400 Baud only with LAN option installed

WARNING! Baud Rate set for PC serial ports in the Tiger Shark Remoter software must match the one set for the corresponding Serial Port on the Tiger-hark. For example, if the serial port 1 runs at 4800 Baud, the same Rate must be chosen for the Tiger Shark Remoter communication through Pc serial ports.

11.2 HOW TO PREVENT THE ACCESS FROM THE FRONT PANEL MENU



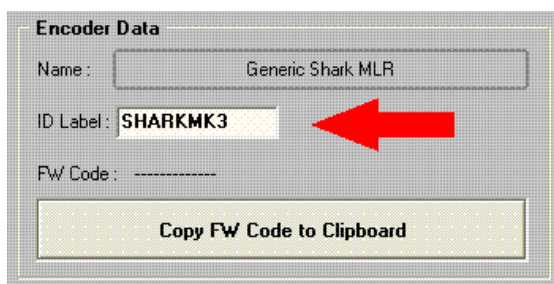
The 'Keyboard Lock' option (in the TIGER TIGER-SHARK REMOTER 'Settings' window) allows you to block any access to the menu via the front panel.

Locking/unlocking can only take place via control software, by entering the password in the space provided in the Setup window.

To activate the lock function, type a password and then click on the corresponding button next to it (Lock). You may remove the connection to the PC. To unlock the panel, **type the same password**, and then click on Unlock. Note: the password may be changed during each access.

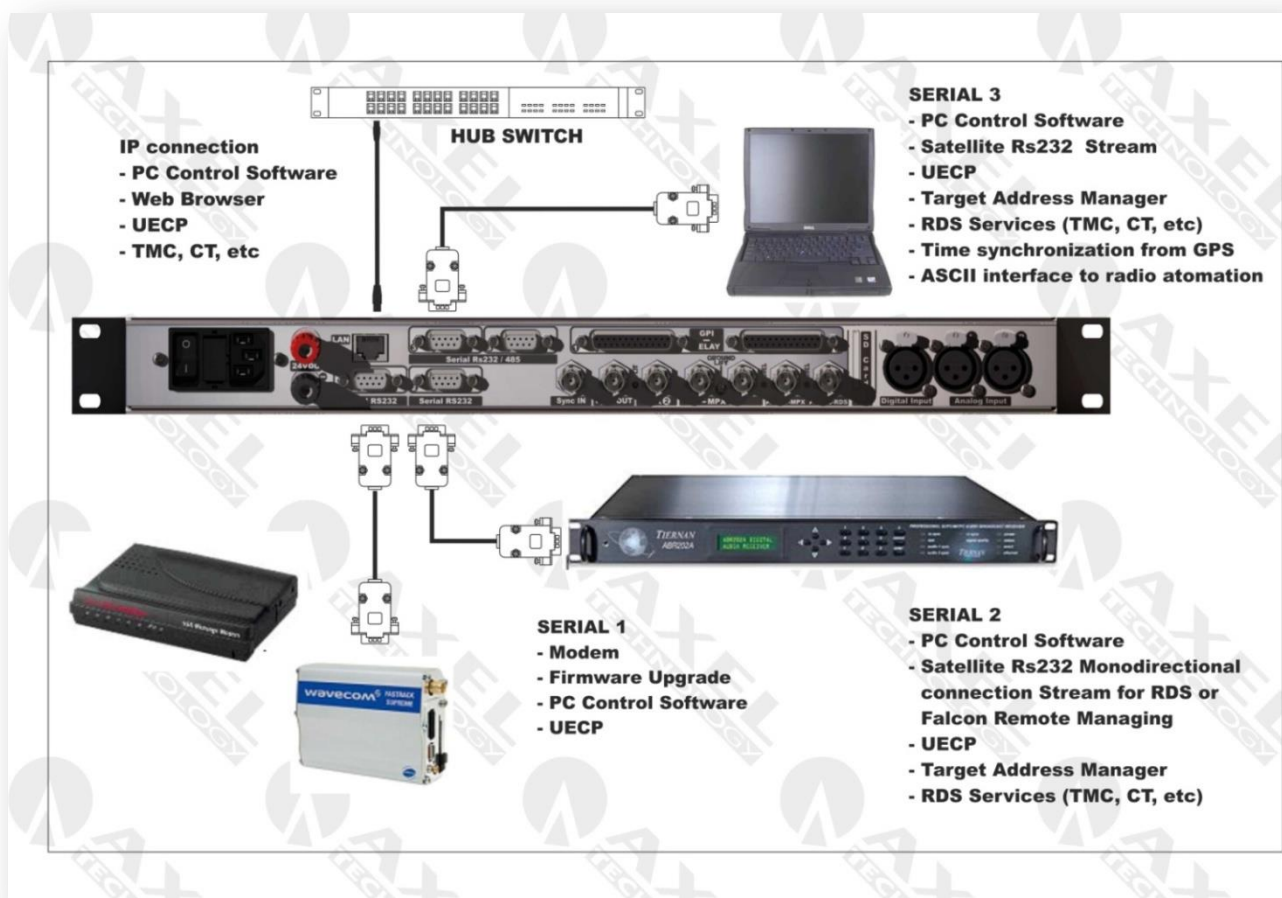
The 'keyboard lock' facility is available only when accessing the unit in a bidirectional mode.

11.3 HOW TO ASSIGN AN ID LABEL TO THE UNIT



In the Settings panel there is an ID label for the connected target (not to be confused with the target name). It is editable both from the field pointed in figure (GENERAL SETTINGS PAGE) and from the Configuration Editor (in [GENERAL_SETTINGS] section) and shown on the front display.

12 SUMMARY OF AVAILABLE CONNECTIONS FOR CONTROL



13 INSTALLATION AND USE OF PC CONTROL SOFTWARE

13.1 INTRODUCTION

The **Tiger Shark Remoter** is a powerful and reliable software running on Microsoft Windows® 2000 Professional and XP, Vista, Seven platforms and specially conceived for equipment remote/direct programming and control.

The **Tiger Shark Remoter** software comes with the equipment. It allows the setting of every parameter and level by means of Bidirectional (i.e. local) serial links or Monodirectional (one-way) serial links. There is no limit in the number of units which can be controlled from a single software license.

The **bidirectional (or local) mode** allows either the visualization in **real time** of the equipment **current configuration** or its modification. This modality is very useful every time you need a real time direct and complete equipment control. A serial bidirectional Pc-target connection is needed.

The **monodirectional connection mode** doesn't involve any return channel. It is possible to send commands to the equipment from remote sites, but it is not possible to have neither a remote monitoring of the machine, nor a confirmation of reception of controls. The unidirectional connection mode is used to control one or more units from a remote site, for example over a satellite link.

In this case, it will be possible only to send the commands or new values for operating parameters one way, without the ability to check whether the change has taken place or to monitor the target current status.
A typical application is centralized remote control of coders installed at a scattered array of transmitting sites.

The **Send** button shown in each window allows you to send to the Tiger Shark the changes, once you have configured them on the software screen.

13.2 SOFTWARE INSTALLATION PROCEDURE

MAKE SURE A TIGER-SHARK REMOTER PROGRAM IS NOT ALREADY INSTALLED on Your computer.

Uninstall OLDER versions before installing NEW ones. From release 5.8.0 it is possible to use the same Axel Tiger Shark Remoter with different release.



When upgrading the firmware, do not forget to install the new associated software version of PC remote control. There is a direct correspondence between the firmware and software versions.

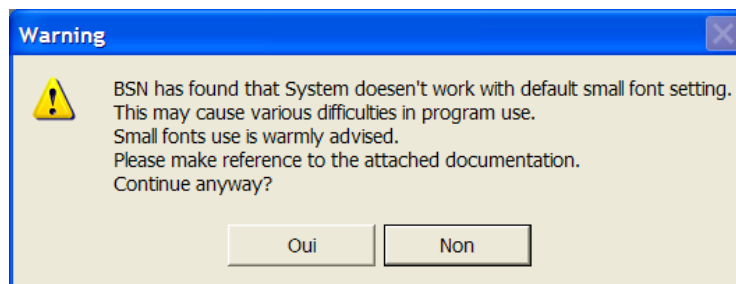
For example, the rel. 3.0 of Pc software requires the firmware version 3.0 installed on the unit and vice versa. More precisely, the two first digits must match, as possible sub-releases (identified by the third digit) are not involved in the firmware/software compatibility.

As general rule, software version X.Y.Z runs with firmware version X.Y.K

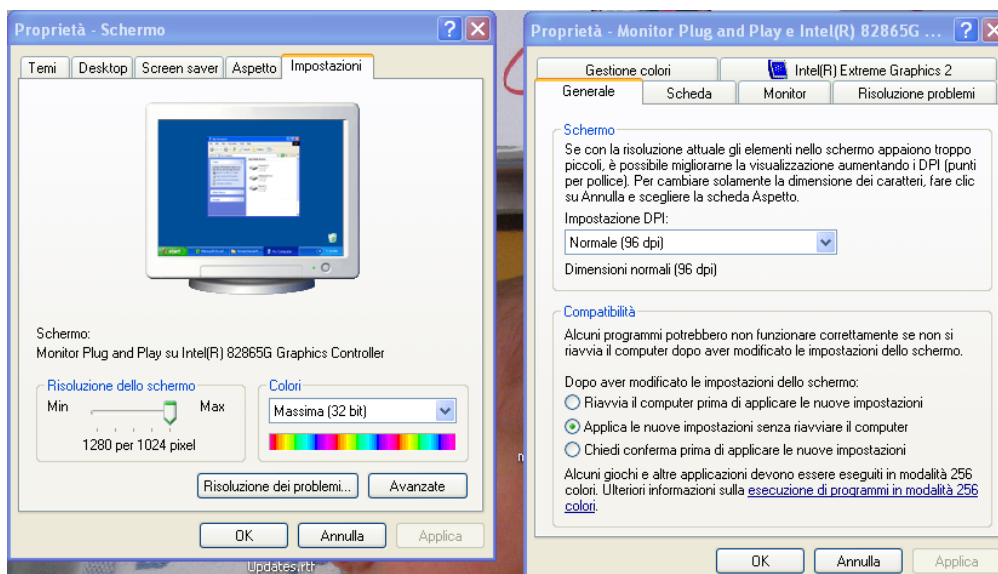
TIGER-SHARK REMOTER software runs on Windows 2000 Professional, Windows XP, Vista, Seven operating systems.

TIGER-SHARK REMOTER software runs on operative System that get a Monitor resolution fixed of 96 dpi (as default) and need some System font like: MS Serif, MS Sans Serif, Courier New, Small Fonts. All that needing are for reading correctly the single elements in the software.

IF some condition are not allowed a warning is showed by the Tiger Shark Remoter

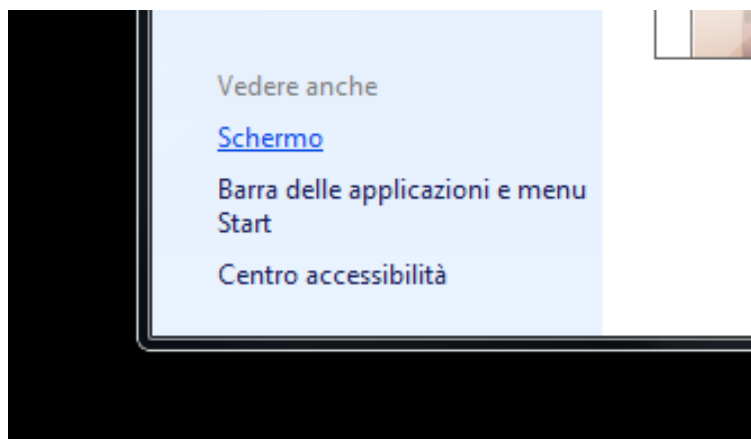


In Windows Xp that problem can be solved saving screen settings in Start -> Settings -> Control Panel -> Screen -> Settings -> Advanced (new window) -> General -> DPI Settings and set as "Normal 96Dpi"

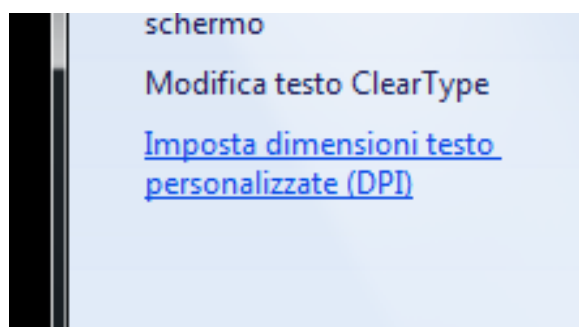


In **Windows 7** that problem can be solved in that way:

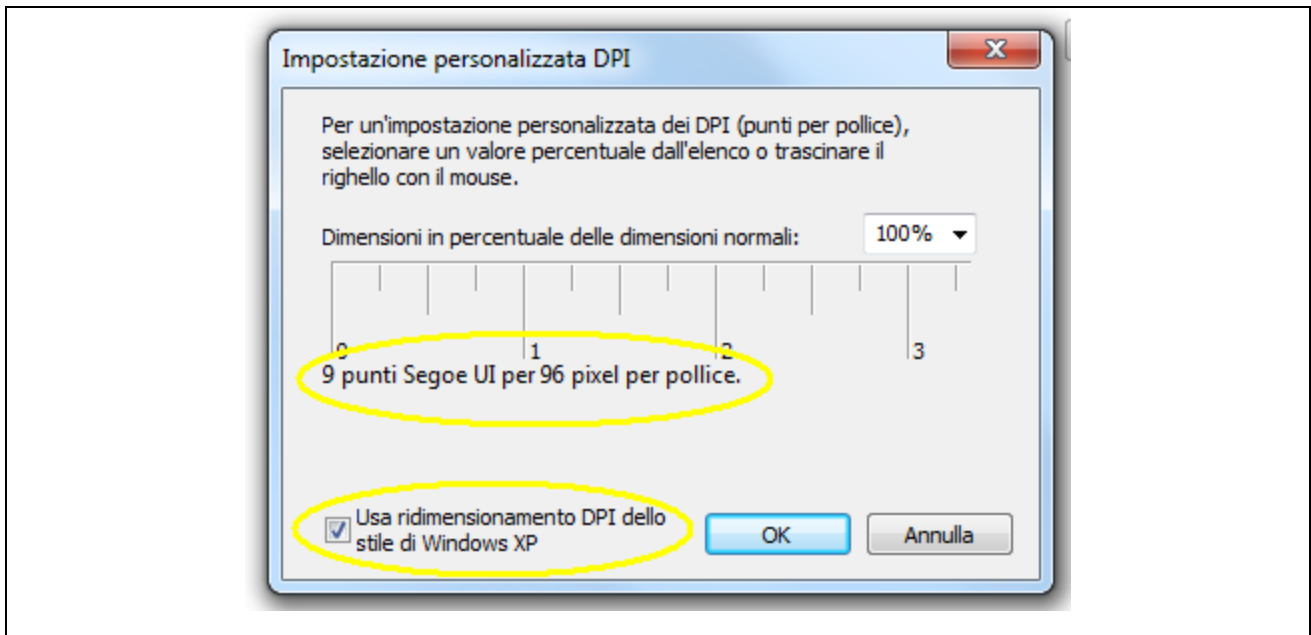
- Left mouse button on desktop
- Select “Custom”
- Select “Screen Settings”



- “DPI Settings”



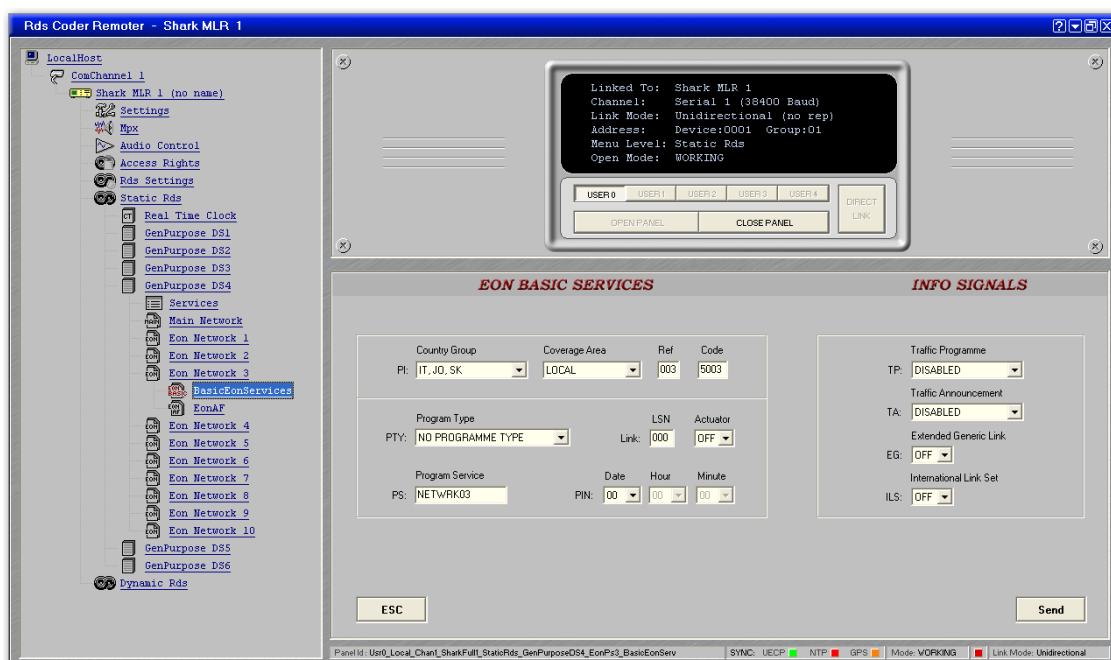
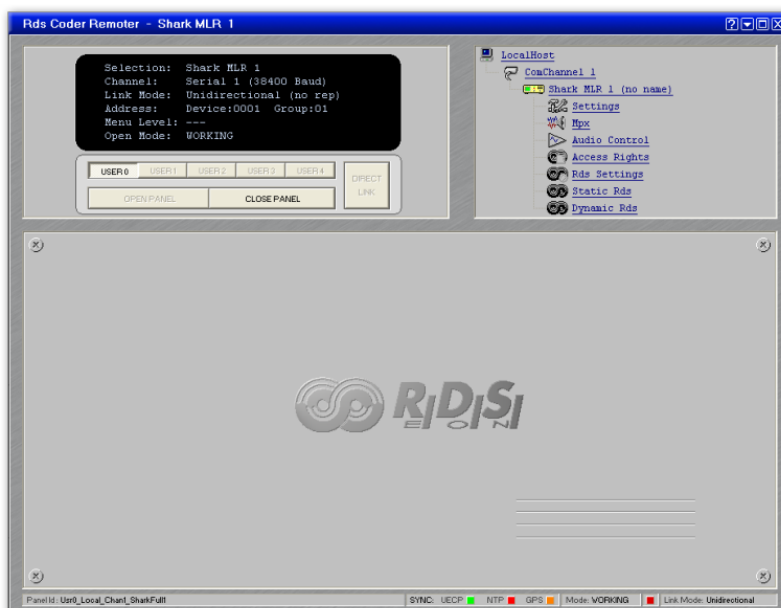
- Check that “9 Segoe Point UI each 96 pixel / inch” is selected
- Flag “Use Windows Xp DPI resizing”
- Save pressing OK



- Stop all the applications currently running on the Pc
- Double click the **setup.exe** file in the 'Pc Control Software' folder – click Next
- On Windows 2000 and XP, the customer information screen is displayed. In the fields provided type in your User Name and your Organization (optional) . Click on either the **Anyone who uses the computer** (all users) or **Only for me** radio button and click **Next** to continue
- The Setup Type screen is displayed. Maintain the **Recommended** setting and click **Next** to continue
- The Ready to Install the Program screen is displayed. Click **Install** to start the installation update. At this point, a status window displays the installation progress of the software
- When finished the InstallShield Window Complete screen is displays. Click Finish to complete the installation. The Tiger Shark remoters soifware runs from the 'Programs' folder. Alternatively, it can be accessed from the associated Shortcut on the desktop.

13.3 TWO DIFFERENT VIEW MODES

The software is able to detect your screen resolution and automatically set the most suitable interface between the available ones: 1024x768 or 1280x800.



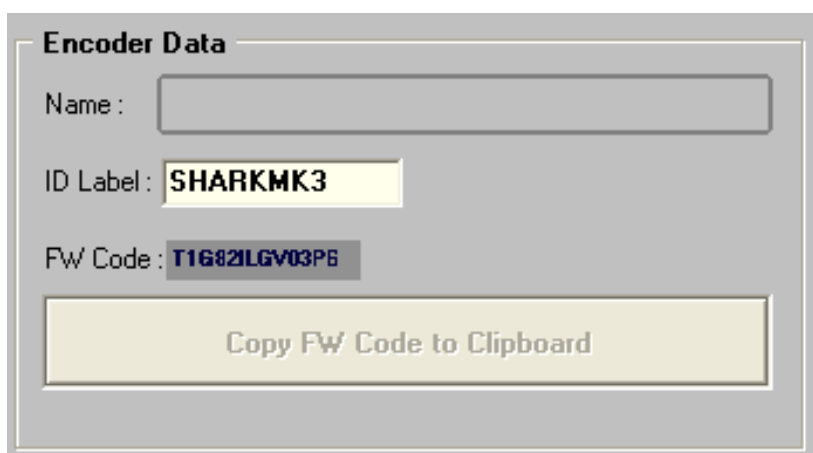
With 1280x800 resolution the navigation tree is on the left and looks like Windows' Explorer. That is very useful for people who must work with many targets and can use a high resolution monitor.

If you want you can switch between the two modes, thanks to the icon on the top right:



The selected resolution is saved in the status file.

13.4 READING OUT THE FIRMWARE CODE



The image shows a software window titled "Encoder Data". It contains three input fields: "Name" (empty), "ID Label" (containing "SHARKMK3"), and "FW Code" (containing "T1G82LGV03PE"). Below these fields is a button labeled "Copy FW Code to Clipboard".

Each Tiger Shark motherboard has its own univocal code, named **firmware code** and composed by 13 alphanumeric characters.

That code – calculated on the basis of the current version, its manufacturing batch, the firmware version and other elements – must be noticed to the manufacturer in the event of installation of new services or options.

The firmware code is displayed on the Front Panel menu (*System Information* menu / *Firmware Code*) and on the Pc Control Software (*General Setting* panel - see picture). The *Clipboard* button copies

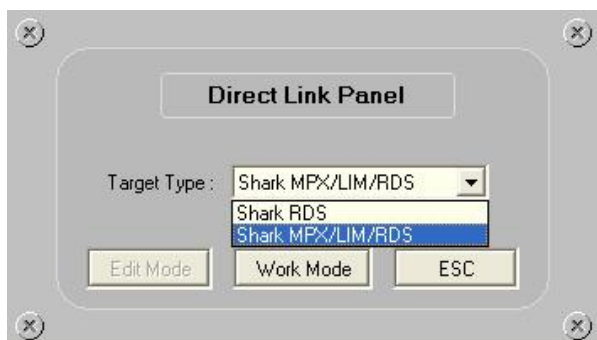
the selected part of the picture to the clipboard. You can then 'Paste' it into any program that texts (such as email, Word docs, etc).

14 BASIC CONNECTION TO A SINGLE CODER (*DIRECT LINK*)

The Direct Link is the most immediate and easy way to connect the Tiger Shark to the Host Pc. It requires a bi-directional communication channel between the Host Pc and the Tiger Shark coder. That channel may be TCP/IP, SERIAL RS 232C type or via MODEM.

This is for a real time monitoring of Tiger Shark current status (audio levels, RDS services, etc).

- click **Direct Link** button

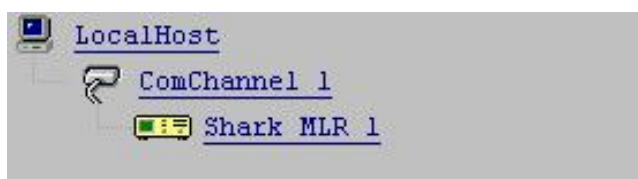


- click **Open Panel**: You will get a mask with a menu listing all the available Tiger Shark versions.

- From the **Target Type** menu, choose the specific Tiger Shark version You are connecting to (Tiger Shark RDS, Tiger Shark MPX/LIM/RDS)

Make sure the current version of the real Tiger Shark unit You are connecting to matches the selected one in the Target Type menu. If it doesn't match, connection will not be achieved.

- Click **Work Mode** button. At this moment, a very basic connection 'tree' will be displayed, showing just Yr Pc (local Host), the serial communication channel (ComChannel 1) and the target equipment (yr current version of Tiger Shark). For example, the picture shows a Pc connected to a Tiger Shark version MPX+LIM+RDS through a generic Communication Channel named 'ComChannel 1'.



To check or set-up connection parameters, click ComChannel icon: You will get a window summarizing all settings done / possible for that channel.

Three communication channel may be used: SERIAL RS232, TCP/IP or DIAL-UP MODEM. For settings of each of them, refer to following chapters.

14.1 DIRECT LINK THROUGH SERIAL RS232

LOCAL RS 232	<input checked="" type="radio"/>
MODEM	<input type="radio"/>
TCP/IP	<input type="radio"/>

Whenever connection to the Tiger Shark is achieved through **Serial** connection, choose '**LOCAL RS 232**' in the communication channel configuration windows (*ComChannel*). Connection mode ('Link Mode') will be automatically set as 'bidirectional':

You will need to set parameters associated to the Pc Serial Port to be used and to its speed.

SERIAL PORT	It selects the Pc Serial Port to be used for the connection (from 1 to 255).
SERIAL SPEED	It sets the maximum Baud Rate for the selected Pc port. By default, the Tiger Shark Remoter will show the maximum value (38400 Baud)



The communication Baud Rate set on the Pc Control Software MUST MATCH the corresponding Baud Rate set for the linked Serial Port on the Tiger Shark
For example, if Serial Port 1 on the Tiger Shark runs at 4800 Baud, the same speed must be set also for the Pc Serial Port involved in the link.

Enter a mnemonic comment / character string into the '**User Note**' field (For example: *TELECOM TOWER – Radio One*). Click OK to confirm, ESC to leave without saving.

14.2 DIRECT LINK THROUGH UP-LINK MODEM

LOCAL RS 232	<input type="radio"/>
MODEM	<input checked="" type="radio"/>
TCP/IP	<input type="radio"/>

Whenever connection to the Tiger Shark is achieved through two Dial-Up modems, choose '**MODEM**' in the communication channel configuration windows (*ComChannel*). Connection mode ('Link Mode') will be automatically set as 'bidirectional':

Refer to the APPENDIX of this manual for physical connection between the Modem and the Tiger Shark , at the Remote side (Tiger Shark Serial Port 1 must be used for that

purpose).

On the Tiger Shark Remoter software, You must set the Serial Port used for connection to the modem and associated connection speed (that usually is 38400 Baud for Pots/PSTN modems and 9600 Baud for GSM modems). You are also requested to enter a Modem initialization string.

SERIAL PORT	It selects the Pc Serial Port to be used for the connection (from 1 to 255). In the event of an USB modem, check which 'virtual' Serial port is automatically selected by the Pc.
SERIAL SPEED	It sets the maximum Baud Rate for the selected Pc port. By default, the Tiger Shark Remoter will show the maximum value (38400 Baud),



The communication Baud Rate set on the Pc Control Software MUST MATCH the connected Modem Baud Rate.

INIT STRING	MODEM SETUP Phone Number <input type="text"/> Modem Init String <input type="text" value="at&f0&k0&c0&s0&r1s2=255"/> <input type="text" value="at&f0&k0&c0&s0&r1s2=255"/> <input type="text" value="at&f&k0&c0&r1s2=255"/>
--------------------	---

Enter here the modem AT initialization string. The Tiger Shark Remoter offers two pre-set strings. The shortest one (*at&f&k0&c0&r1s2=255*) usually fits PCI internal modems, while the longest one (*at&f0&k0&c0&s0&r1s2=255*) usually fits external modems.

PHONE NUMBER Enter here the number to dial, along with Country code, Area Code, Prefix, etc.

Click OK to confirm, ESC to leave without saving.

14.3 CONNECTING A DIAL-UP MODEM

Whenever a remote control through dial-up modem is required, connect the modem to Serial Port 1, on the back of the unit. Please pay attention to the Port 1 configuration: its speed must be set to:

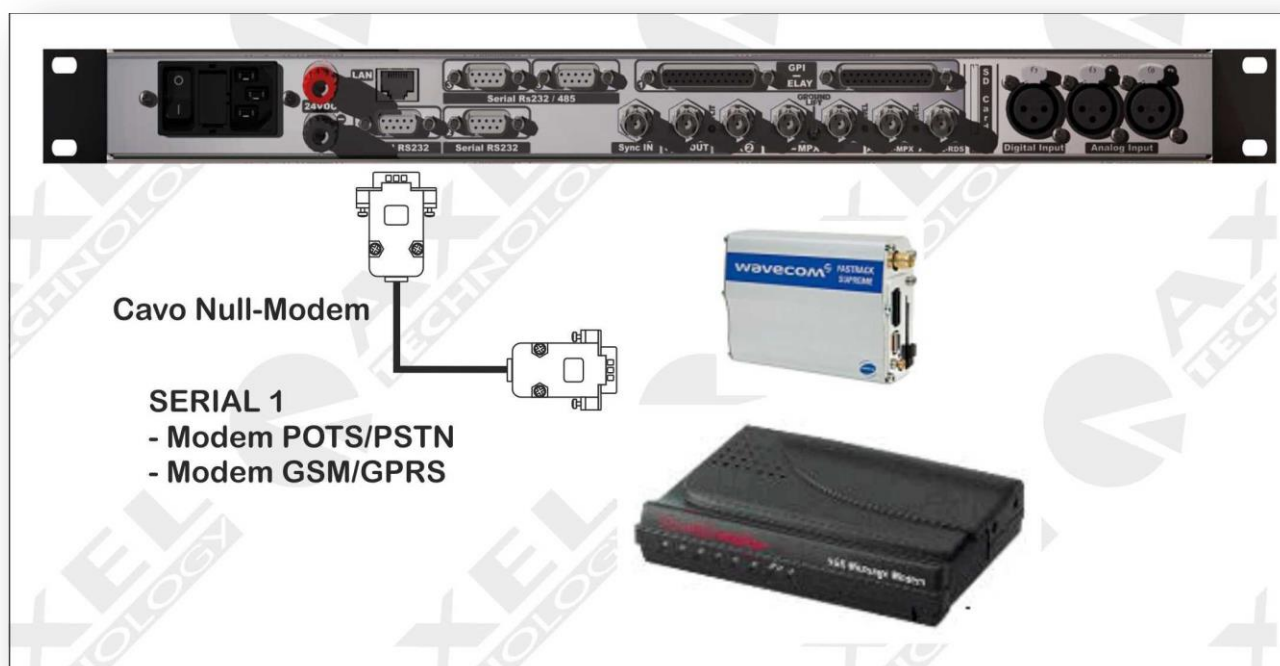
- 38400 Baud for Pots dial-up modems
- 9600 Baud for GSM modems.

A 'cross' (**NULL-MODEM**) **CABLE** is needed for connection to the modem. The following table shows the wiring diagram for the cable in both case the Modem has 9 pins or 25 Pins female SubD connectors.

Also remember to:

- On a 25 pin plug connect pin 6 and 8.
- On a 9 pin plug connect pin 1 and 6.

	SHARK side (SubD9 Male)	Modem Side (SubD 9p M)	Modem Side (SubD 25p M)
Pin	2	3	2
Pin	3	2	3
Pin	4	6 and 1	6 and 8
Pin	5	5	7



Regarding the Receiving Modem (the one connected to the Shark serial port), it must have at least the following settings (modem commands are in brackets. They are related to the most common modem models):

- IGNORE CD (the usual command is &C0)
- IGNORE RTS (&R1)
- IGNORE DTR (&D0)
- Disable TX Flow Control (&H0)
- Disable RX Flow Control (&I0)
- Disable Data Compression (&K0)

You also to set the S0 and the S2 registers in the following way:

- S0=2
- S2=255

*S0 Register represents the number of rings before Auto-Answer. It sets the number of the rings required before the modem automatically answers a call. Range: 0-255 rings. Setting this register to zero disables auto-answer mode. $S0 = n$, where n is the number of rings. **It is advised $S0=2$***

*The S2 register (Escape Code Character) specifies the ASCII value of the character used in the escape code. (The escape code is the escape character entered three times in succession.) When the modem is in connect state and it receives the escape code, the modem enters command state. Normally, setting register S2 to 128 or above disables the escape code character. **It is advised to set $S2=255$***

You should **load those settings in the modem memory**, so that they are automatically loaded at the modem start-up. Please refer to the modem user guide for further reference.

For proper configuration of Tiger Shark Remoter software in order to support modem communication refer to Part TWO of this manual.


14.4 DIRECT LINK THROUGH TCP/IP

LOCAL RS 232	<input type="radio"/>
MODEM	<input type="radio"/>
TCP/IP	<input checked="" type="radio"/>

Make sure the Tiger Shark already has a valid TCP/IP address with relevant subnet mask and IP Port Number (see next Chapter for further help).
Choose 'TCP/IP' in the communication channel configuration windows (*ComChannel*).
You will get a mask summarizing data of current TCP/IP connection:

To enter the actual IP address and IP port of the Tiger Shark to connect to, click **[EDIT]**. The 'Configuration Editor' program will open. Refer to relevant Chapter for using the Editor.



Click  button. The Configuration Editor screen will load the Data Base of existing Tcp/Ip connections and will list them.

In particular, in the section [GROUP_START], the Editor gives the possibility to enter a 'mnemonic' name for the Group one is connecting to, plus a name for the specific unit in the Group, its IP address and associated Port.

[GROUP_START]

GROUP_NAME="Default Group"

TIGER-SHARK_1="Target 1", 000.000.000.000 , 1327

[GROUP_END]

EXAMPLE

For example, if You are connecting to three units, two belonging to the same group and one to a separated Group:

- One with address **192.168.0.55**, assigned port **1329** and name **Channel Four** belonging to **BBC ONE** Group
- One with address **192.168.0.56**, assigned port **1330** and name **Channel Five** belonging to **BBC ONE** Group
- One with address **82.120.0.85**, assigned port **1340** and name **Channel Three** belonging to **BBC TWO** Group

You will need to deselect 'Read Only Mode'  option and edit the following lines:

```
[GROUP_START]

GROUP_NAME=" BBC ONE "

TIGER-SHARK_1="Channel Four ",      192.168.0.55, 1329
TIGER-SHARK_2="Channel Five ",      192.168.0.56, 1330

[GROUP_END]


[GROUP_START]

GROUP_NAME=" BBC TWO "

TIGER-SHARK_1="Channel Three ",      82.120.0.85, 1340

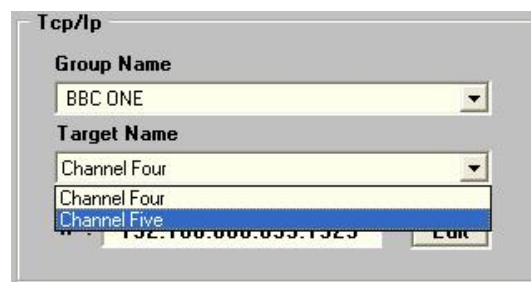
[GROUP_END]
```

Refer to Appendix A for Configuration Editor syntax.

Once entered the IP address with relevant Ports, save them by clicking  and accepting DataBase modification.

Close the Configuration Editor by clicking  and come back to ComChannel settings.

For example, with reference to the previous example, the Connection Mask will resemble as follows:



The associated IP address + IP Port will be displayed in the bottom field.

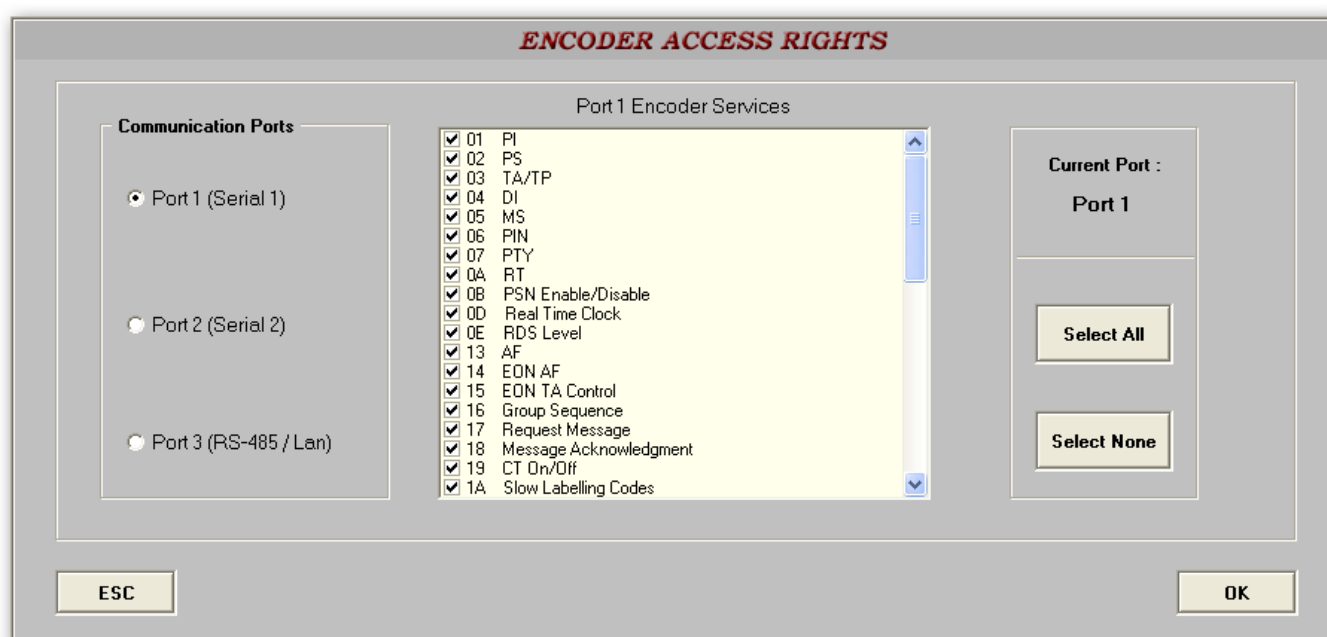
Click OK to confirm, ESC to leave without saving.

15 MANAGING ACCESS RIGHTS TO THE ENCODER



By accessing Access Rights panel from the menu tree, you may set RDS services granted / allowed on each Connection Port.

Port 3 selection affects RS-485 connection (whenever available) in addition to Ethernet (Lan TCP / IP) connection.



IMPORTANT NOTE:

In Tiger Shark it is possible to set the Extended Port (COM 3) in UECP MODE.
So it's possible to receive UECP Comands on this port.

But if you set COM3 in UECP MODE the UECP TCP/IP
it's not available further.

It is possible to change this setting via Web Server.
Otherwise web server and SNMP are always working.

16 HOW TO ASSIGN AN IP ADDRESS TO THE TIGER-SHARK



IP assignment to the Tiger Shark **must be executed prior to connect to the Computer.**



IP assignment to the Tiger Shark will be possible through Tiger Shark Serial Port 1 and Serial Port 2.

- Run the application **Target Address Manager** from Start/Programs/Axel Tiger Shark Remoter vers XX
- Establish a serial connection to the Tiger Shark unit to be assigned with an IP address. Set Serial Port # and Serial Port speed on the Target Address Manager interface. Make sure the chosen connection Pc speed matches the corresponding Tiger Shark Serial Port (see also Serial Port menu setup from the Front Panel).

Target Address Manager III - v1.1.0 - Connected at 38400 Baud

Individual Address
0005 — 06

Connect to Target ➡

Reset All Target Data [0]

Reset DataSet 1 [DS1]

Reset DataSet 2 [DS2]

Reset DataSet 3 [DS3]

Reset DataSet 4 [DS4]

Reset DataSet 5 [DS5]

Reset DataSet 6 [DS6]

Site List

Site	Address	Enabled
1	0001	<input checked="" type="checkbox"/> Enabled
2	0000	<input type="checkbox"/> Enabled
3	0000	<input type="checkbox"/> Enabled
4	0000	<input type="checkbox"/> Enabled
5	0000	<input type="checkbox"/> Enabled
6	0000	<input type="checkbox"/> Enabled
7	0000	<input type="checkbox"/> Enabled
8	0000	<input type="checkbox"/> Enabled

Encoder List

Encoder	Address	Enabled
01	01	<input checked="" type="checkbox"/> Enabled
00	00	<input type="checkbox"/> Enabled
00	00	<input type="checkbox"/> Enabled
00	00	<input type="checkbox"/> Enabled
00	00	<input type="checkbox"/> Enabled
00	00	<input type="checkbox"/> Enabled
00	00	<input type="checkbox"/> Enabled
00	00	<input type="checkbox"/> Enabled

COM Port

Com Port : COM1

Com Speed : 38400 Baud

Target ID
TShark01

RDS Mode

☒ UECP Compatible

☐ EXTENDED Mode

IP Address : 192 . 168 . 000 . 064

Subnet Mask : 255 . 255 . 255 . 000

Gateway : 000 . 000 . 000 . 000

Port : 1336

NTP IP Address: 000 . 000 . 000 . 000

NTP Port : 0

SNMP Manager IP Address
000 . 000 . 000 . 000

i Connected Target: Shark MPX/LIM/RDS - Firmware Ver.5.1
Connection Speed: 38400 baud.
Now you can change Target values by editing fields and clicking 'Send Data'.
When you have finished, choose 'Quit'.

Send Data

Reload Data

Quit ➡

Tiger Shark presents the following **default settings**:

IP Address	192.168.000.020
Subnet Mask	255.255.255.000
IP Port	1327

Enter new settings in the relevant fields. For example, the picture above shows Tiger Shark programming with address 192.168.0.64, SubNet Mask 255.255.255.0 and Port 1336.

Click **SEND DATA** to up-load new settings into Tiger Shark memory.

Before disconnecting from the Target, it is advisable to check integrity and consistency of loaded data using the 'Reload Data' function, which access the Tiger Shark memory and shows its actual content.

Once the task is finished, click 'Quit' .

You may always check current IP settings from the front panel menu on the Tiger Shark (SYSTEM INFORMATION, submenu Tcp/Ip Address, Tcp/Ip Port and Tcp/Ip S.Mask).

NOTE: refer to UECP normative for the use of ID List and Group List fields.

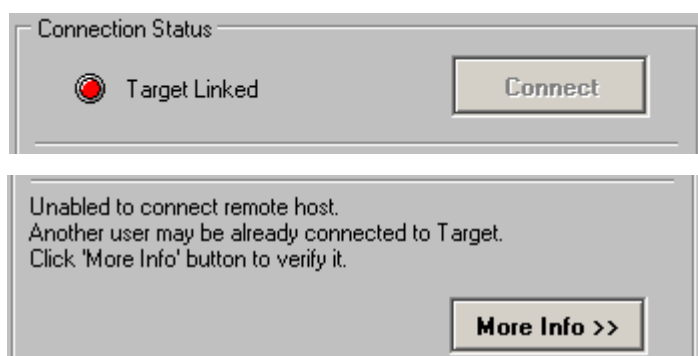
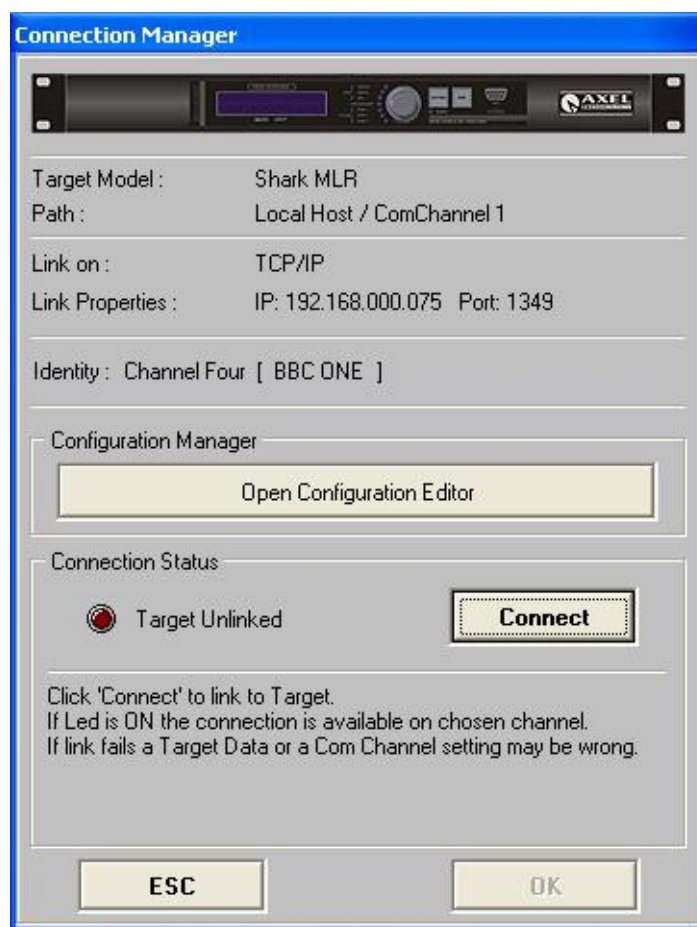
17 GETTING CONNECTED - THE 'CONNECTION MANAGER'

Once the configuration of Communication Channel is finished, You may run the physical connection to Tiger Shark.

Double click the Tiger Shark icon You are going to connect to (for example *Tiger Shark MLR 1* in the picture on the right).

The 'Connection Manager' window will open, that summarizes all connection settings and configuration. In this example, connection is done through TCP/IP , Port 1349. The '**Open Configuration Editor**' button open an 'off-line' configuration window, for editing data to be uploaded into the Tiger Shark when connecting. (v. Chapter **Errore. L'origine riferimento non è stata trovata.**).

Once checked the connection settings, click **CONNECT** to establish the link with the Tiger Shark.



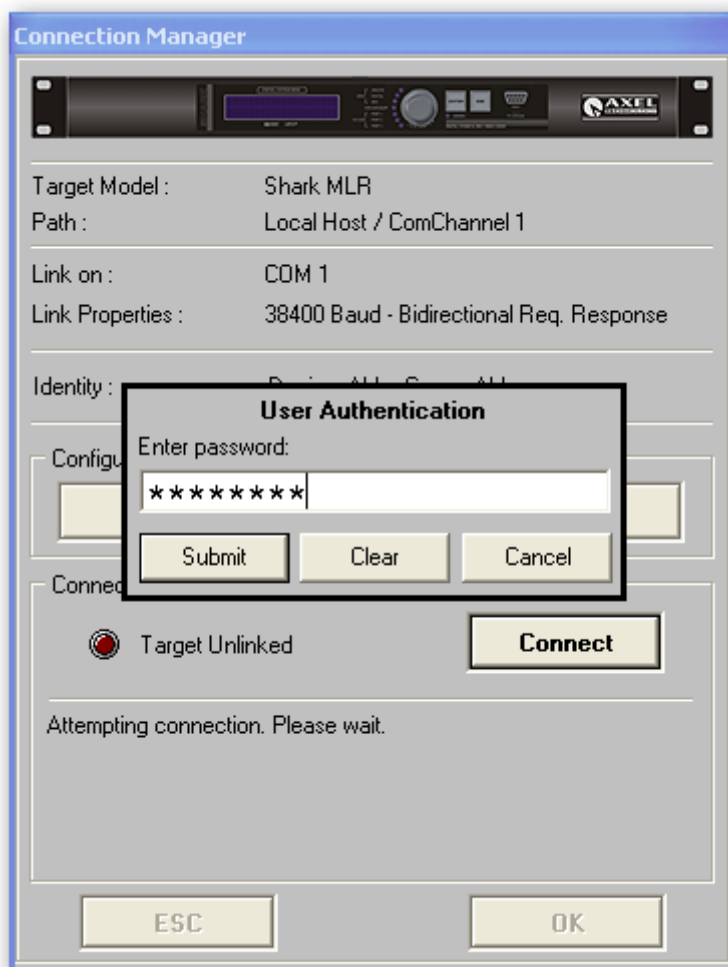
If the connection runs properly, a Red Light with associated 'Target Linked' label will turn on.

If not, a proper message tells possible causes for connection errors (wrong serial port, no answer from the Target, etc).

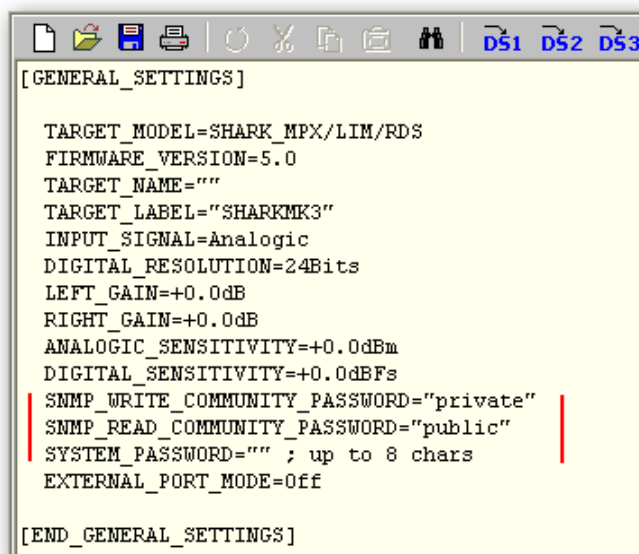
In the event of IP connection over local network, **More Info** button offers further information on the reasons of missed link (for example, another user is already connected)

18 HOW TO SETUP A CONNECTION PASSWORD

When connecting to Tiger Shark in BIDIRECTIONAL mode, a System Password may be setup, in order to prevent access from not authorized users.



System password must be setup from the Configuration Editor (see relevant Chapter).



19 HOW TO DISCONNECT FROM A TIGER-SHARK

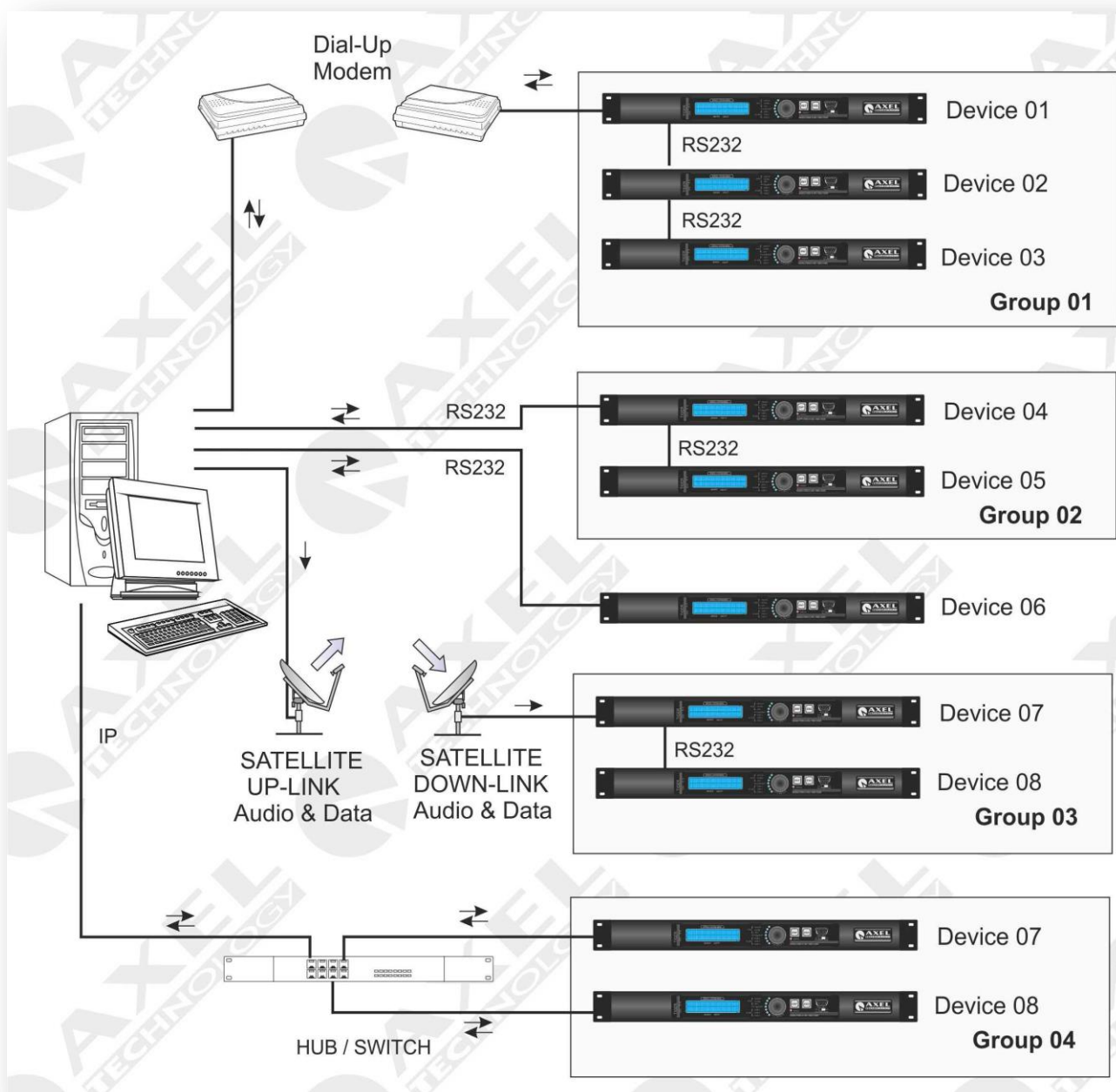


To disconnect, **double click** on the **icon of the unit** to disconnect from or double click on the associated **Com Channel icon**.

For example, with reference to the picture, double click on the Tiger Shark MLR 1 icon or the ComChannel 1 icon.

A message will appear, asking to confirm disconnection.

20 MANAGING TIGER-SHARK in GROUPS



Tiger Shark Coders can be managed / accessed either as single Units, or in groups. To manage Tiger Shark in Groups, You will need to assign each unit with a identification code, composed by a Device Number and a Group Number.

This give the users the highest flexibility in controlling units individually or in groups, by sharing same commands among several units or forcing an individual unit with a specific address to execute a broadcast command.

The Device Number and the Group Name will be given to each Tiger Shark using a dedicated tool, called Target Edit Manager and included in the Tiger Shark Remoter – software suite.

The same tool allows also to provide each individual unit or group with a 'Target / Group Name', i.e. a 'mnemonic' field to make control and connection much easier.

For example, a national network could assign the *Group Name* field to the region where the unit is in operation, and give the *Target name* the name of the town hosting the broadcasting site, or the city covered by that site.

Suppose you have 3 coders in the Tuscany region (the first covers Lucca, the second Florence and the third Pisa) and 4 others in the Marche (Pesaro, Ancona, Urbino, Macerata). The Target name and Group Name will be programmed for the individual machines as follows: Group name = Tuscany, Target Name = Lucca for the first coder, Group name = Tuscany, Target Name = Florence for the second coder, etc.

Target Name	Group Name	Device Number	Group number
Lucca	Tuscany	0001	01
Firenze	Tuscany	0002	01
Pisa	Tuscany	0003	01
Pesaro	Marche	0004	02
Ancona	Marche	0005	02
Urbino	Marche	0006	02
Macerata	Marche	0007	02

Connection between remote Tiger Shark units and the central control Pc may be uni-directional or bi-directional, depending on the available communication resources and the typology of controlled units.

For example, the picture above shows a Satellite channel, which is typically uni-directional, two serial RS232 connections, one monodirectional (because connecting a group of equipment) and one bi-directional (linking just one unit).

Up to 5 Users can be managed, each one accessing its own system tree, i.e. its own portion of system.

That means, it is possible to give to each user different rights in accessing the targets and their configuration.


Group Number and Device Number correspond respectively to UECP Site Address and Encoder Address codes

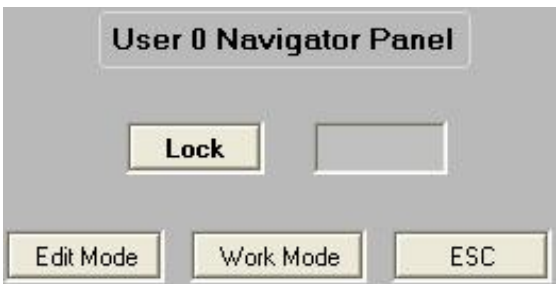
20.1 FIRST STEP: COMPOSE THE 'TREE' INTO THE TIGERSHARK REMOTE (EDIT MODE).

As first step, You need to 'edit' (draw) the system tree like on a 'blackboard', starting from the central Control Pc, adding connection channels and, for each 'branch', the associated target(s) or groups of units.

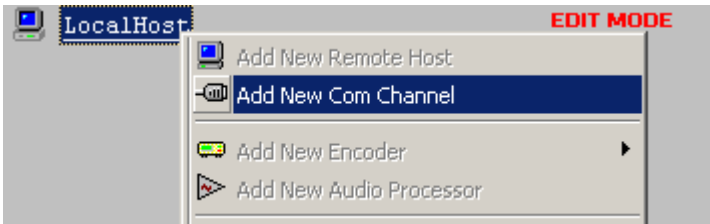
Local Host Pc is the Pc running the Tiger Shark Remoter software (i.e. the Pc you are using!). At this time, each single element composing the system will be not configured. We just place 'blocks' onto a virtual 'blackboard', to have a proper representation of the actual system. Later, from the Work Mode, each unit will be assigned with 'real' operation parameters, such as Baud Rate, Com Ports, Address, etc.

You may edit / compose 5 different system trees, one for each USER listed in the Tiger Shark Remoter panel (USER 0, USER 1, USER 2, USER 3, USER 4).

- 

Select the User access (for example. User 0) and then press the **'Open Panel'** button: the User navigation Panel will be automatically displayed.
- 

LOCK function: *To prevent undesirable access to system configuration pages, enter a generic password (which can be changed at user's discretion) in the blank field and click Lock button. To unlock, enter the SAME password and click 'unlock'*

Click **Edit Mode** button: Edit Mode Navigator Panel will open (and the 'Edit Mode' identifier appears at the upper right corner).
- 

Move the mouse pointer onto the **Pc LocalHost** icon and then **click right**: a pop-up menu will appear.

First, You have to add a Com Channel, i.e. a serial link connecting the Control Pc to remote target(s). That Com Channel will be edited later.

Each Com Channel may be associated to Single Units (single targets) or Groups of Targets. Various 'undo' tools are also available for removal of inserted elements or system re-initialization.

20.1.1 ADDITION OF A SINGLE CODER

Having placed the communication channel, click right on *ComChannel* icon: a new pop-up menu will appear. To add a new single encoder, select *Add New Encoder* item and then select the Target version (MPX, RDS, etc)



Every time a new Target or a new Group of Target is added, a special window (**Target Edit Manager**) opens automatically.

It allows You to set two basic Target identification codes: a **Device Number** (4 characters) and a **Group Number** (2 characters).

It permits also to associate an identification label (**Target Name**) which makes target identification easier across the network. The Target Name will be displayed next to the icon on the System Tree, as well as in the 'Settings' window in the Tiger Shark Remoter. Please refer to paragraph "THE MNEMONIC IDENTIFIERS FOR SINGLE TARGETS OR GROUPS".

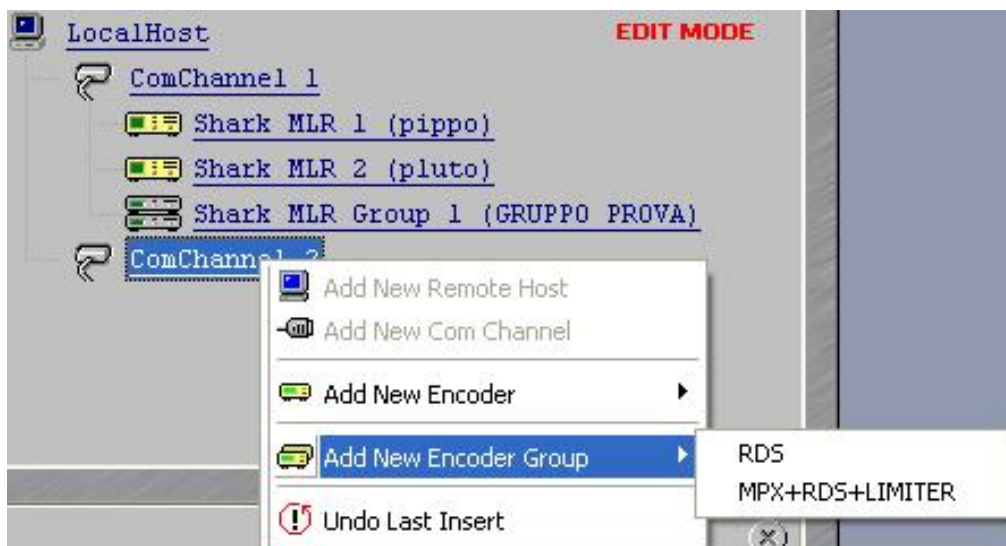
Be careful not to assign the same Target name or the same Group name to two different devices.



Group Number and Device Number correspond respectively to UECP Site Address and Encoder Address codes.

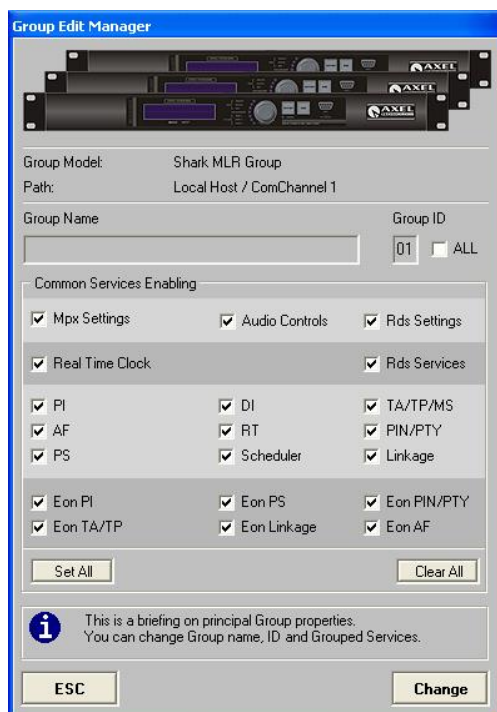
20.1.2 ADDITION OF A GROUP OF CODERS

After having created a new communication channel icon (see *ComChannel2* in the picture), click right on that icon: a new pop-up menu will appear. To add a group of encoders, select *Add New Encoder Group* item and then select the coder type. A new group of encoder is a group of Targets which share the same Group number and are of the same type (i.e. they can be programmed in the same way and at the same time).



NOTE: Communication channel is automatically forced to **Monodirectional** (one-way) as soon as two or more 'targets' will share the same communication channel i.e. as soon as a **New Encoder Group** is added.

The 'Group Edit Manager' window will open automatically. It can:



- Assign a specific Group identifier (**Group ID**) or associate current targets to all Groups (**ALL**)
- Assign a **Group Name**, i.e. a mnemonic identifier (max 20 characters).
- State which **configuration commands** (MPX settings, Audio Control, RDS Settings) will be accepted by this Group (i.e. which configuration can be altered from the remote side). As You can easily understand, available command configurations will depend on actual version of Tiger Sharks belonging to the Group.
- In the event of **RDS versions**, the window will list those services which can be altered from remote (DI, PS, RT, etc).
- **SET ALL** button sets all available services 'on'
- **CLEAR ALL** button set all active settings 'off'.

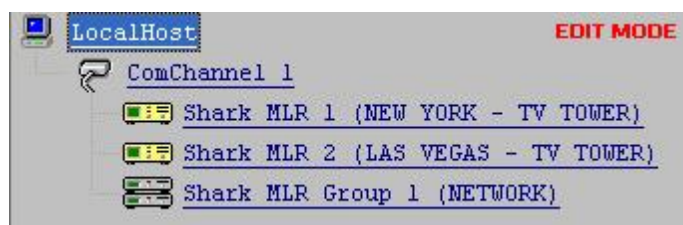
Once the window has been edited, press **Confirm** to save data or **ESC** to quit without saving modifications.

The 'Group Edit Manager' window can be recalled at any moment just double-clicking on the associated Group icon.

Group Number and Device Number correspond respectively to UECP Site Address and Encoder Address codes.

20.1.3 THE MNEMONIC IDENTIFIERS FOR SINGLE TARGETS OR GROUPS

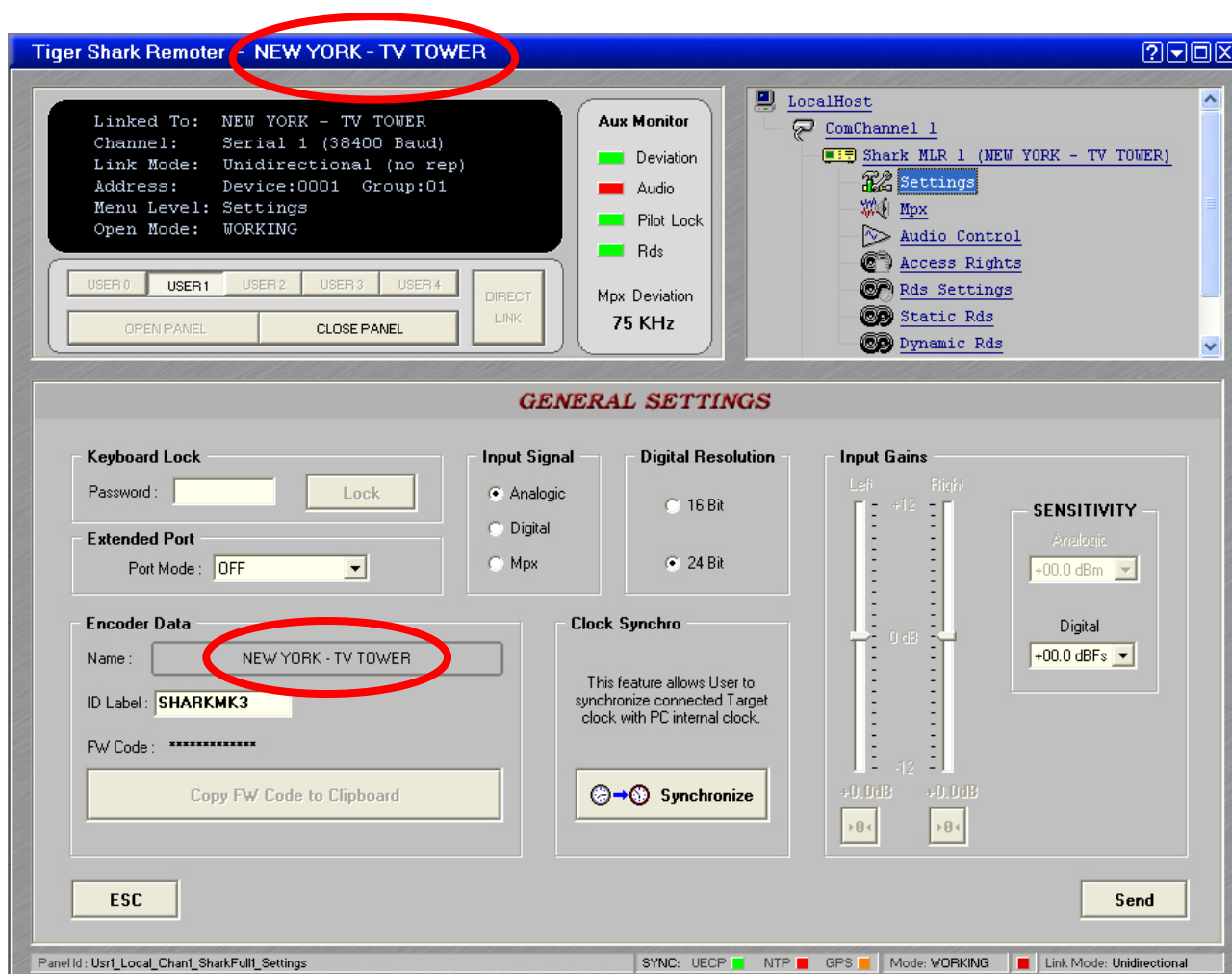
The fields 'Target Name' and 'Group Name' in the respective Target Edit Manager and Group Edit Manager windows may be loaded with a name or an equipment label (max 20 characters) in order to make coder identification easier. Typically, identifiers are geographic identifiers or they are associated to the name of the Network or to the Frequency/channel used.



For example, entering 'New York - TV tower' as Target Name, that name will appear next to the device (see picture on the left).

The same name will appear in the 'General Settings' window / 'Encoder Data' field and in the connection summarizing table of the Tiger Shark Remoter (see picture below), once the link with the target has been





established.



NOTE: 'Target Name' and 'Group Name' are saved on the computer running the Tiger Shark Remoter. They are never installed into Tiger Shark physical memory. They serve as 'guide' / hint for the connection task

20.1.4 SYSTEM TREE – EDITING TOOLS

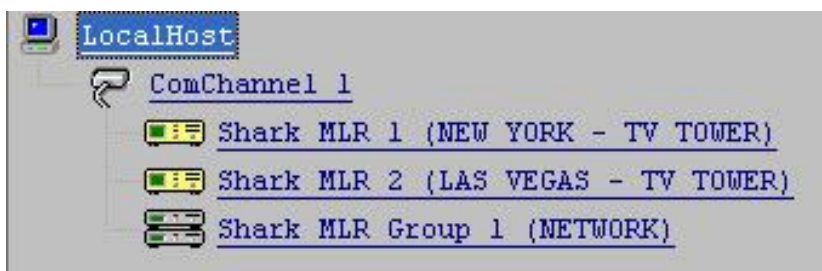
The menu items displayed whenever right clicking on the system Tree offer some helpful editing tools:

 Undo Last Insert	Removes the last coder, or last group of coders, inserted
 Remove Target / Group	Removes the selected coder or group of coders
 Remove Com Channel	Removes the selected Communication Channel
 Re-Initialize User System	Removes the whole System Tree and let You start again from scratch.
Properties...	Opens the Target Edit Manager or Group Edit Manager window , According to the selected Target (a single coder or a Group of them).

20.2 SECOND STEP: THE 'WORK MODE'

Once the system tree has been created in 'EDIT MODE', click **CLOSE PANEL** button.

The User will be asked whether to save or discard modifications done to the System Tree. Click Yes. Click Open Panel button: User 0 Navigation Panel will open. Click WORK MODE button.



The Tiger Shark Remoter will display the same System Tree just created in the EDIT MODE, but You will now be able to configure real operating parameters for each element in the system, such as ComPort, IP address, speed, etc and then establish a physical connection to the Target(s).

Follow the same procedures shown in the 'BASIC CONNECTION TO A SINGLE CODER' for proper configuration of connection channels and targets.

20.3 CONFIGURATION OF A MONO-DIRECTIONAL COM CHANNEL

As already stated, a system composed by a single Pc at the head of the network and by several distant Tiger Shark units (Targets) may require mono-directional com channels, i.e. channels which do not support any data stream from the Target back to the central control Pc. Monodirectional Com channels are usually available over satellite links.

In general, a Mono-directional channel may be RS-232 or Modem type.

In both cases, You will need to configure which Serial Port and which speed must be used.

SERIAL PORT	It selects the Pc Serial Port to be used for the connection (from 1 to 255). In the event of an USB modem, check which 'virtual' Serial port is automatically selected by the Pc.
SERIAL SPEED	It sets the maximum Baud Rate for the selected Pc port. By default, the Tiger Shark Remoter will show the maximum value (38400 Baud),



The communication Baud Rate set on the Pc Control Software MUST MATCH the corresponding Baud Rate set for the linked Serial Port on the Tiger Shark. For example, if Serial Port 1 on the Tiger Shark runs at 4800 Baud, the same speed must be set also for the Pc Serial Port involved in the link.



In addition to connection speed, also a 'packet redundancy' factor may be set, in order to increase robustness of the link against transmission errors.

In practice, **no packet redundancy** means each transmitted packet contains 'original' information, not duplicated.

One packet redundancy means each data packet is followed by a second packet bearing the same information. If the first packet gets corrupted, the second is used to recover original transmitted information.

With the same philosophy, **Two packets Redundancy** means each data packet is followed by two redundant packets; **Three packets Redundancy** means each data packet is followed by three redundant packets, etc.

As one may easily understand, maximum link reliability is achieved by setting **Four Packet Redundancy**, even if it involves a 'real' (payload) connection speed which is one fifth of that selected in the 'Serial Speed' menu.

21 THE 'CONFIGURATION EDITOR': WHAT IS AND HOW TO USE IT

The Configuration Editor makes viewing or changing the Tiger Shark current settings easier, as it allows you to edit a configuration file, through an easy-to-use **TEXT ONLY** interface like Windows "Notepad".

Complicated system parameter settings / changes can be simply accomplished in a 'written' mode, through commands/values provided in a textual (ASCII) way.

For example, a simple PSN programming may be 'written' as follows:

```
PSNAME_0= "BBC ONE ",Normal
PSNAME_1= "LONDON ",Normal
PSNAME_2= "UK      ",Normal
```

Furthermore, any operative configuration of the encoder (input gain, pilot level, RDS messages, RDS DataSet status, etc) may be saved at any time and recalled at Yr convenience.

You may also 'Import' (download) the current configuration from Your target and:

- duplicate it on a new Target
- print-out it in a textual (ASCII) format
- save it in a Pc directory

The Editor can run in two different modes: **off-line** (i.e. there is no direct link to the encoder) or **on-line** (i.e. the computer running the Tiger Shark Remoter Remote Software must be communicating with the Tiger Shark).

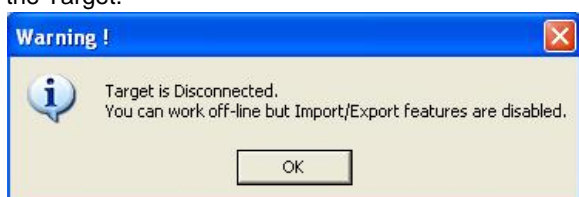
In the **Off-Line** mode, You may open one of the 'Demo' files or edit a file previously saved. Edited files can NOT be loaded into Tiger Shark memory.

In the **ON-LINE** mode, with a bi-directional link You may import from the Target its current configuration, edit it and then export it again to the Target. Using a mono-directional link export toward the Target will be only achievable.

The Configuration Editor is based on standard **Windows tools** for text editing (copy, paste, cut, find, undo, save, open, etc) and its us is therefore simple and intuitive.

To open the Configuration Editor in the **ON-LINE** mode: after accessing the target in Simple or User X mode, **click right** on the **Target icon** on the Navigation tree.

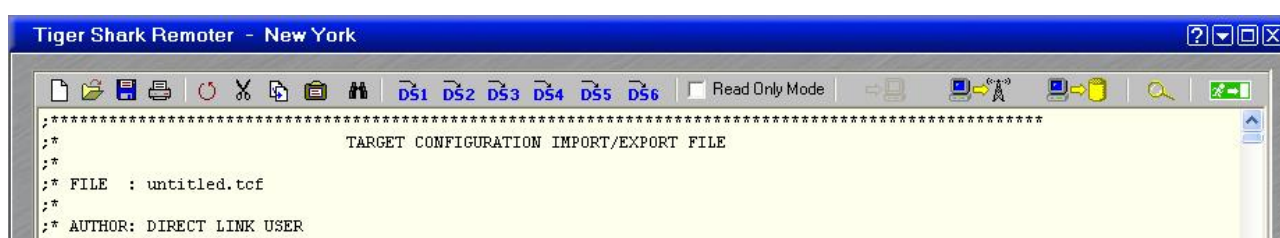
In the **OFF-LINE** mode click on **Open Configuration Editor** in the **Connection Manager** window before connecting to the Target.



A **Warning** box will remind You that You have chosen the off-line work mode. As the Target is not connected, Import / Export of current Target configuration are therefore not possible.

Click **OK** to access next Configuration Editor window.

21.1 EDITOR TOOLS



Starting the Configuration Editor opens up the Editor window. The buttons along the upper side select some typical file management options.



NEW command: It will display a **default** Configuration File, accordingly to the chosen Target.



OPEN command. It will open a window showing all the available configuration files (with extension *tcf* - *target configuration file*). If Direct access is engaged, Tiger Shark Remoter provides You also with 8 different Demo files, helping to understand the right way to operate RDS Scheduler.



SAVE it saves current file (configuration) to the location the user specifies



PRINT command. A specific window will be displayed, helping You in choosing the portion of document to be printed (only Target 'hardware' configuration, Hardware configuration + RDS DataSet 1, etc)



UNDO command. This function is available only with 'Read Only Mode' selection disabled



CUT command. This function is available only with 'Read Only Mode' selection disabled



COPY command. Function available when 'Read Only Mode' option is disabled.



PASTE command. Function available when 'Read Only Mode' option is disabled.



FIND command: To search for text in the file



JUMP TO DATASET. The 4 buttons DS1, DS2, DS3 and DSA instantaneously recall the portion of configuration file associated to the desired Dataset.



IMPORT command. It reads the current overall Target configuration and displays it in the Editor window. Function available only with a single Target connected in Bidirectional Mode.



EXPORT command. It loads the currently displayed configuration into the Target memory and updates the DataBase of the local files. Function available in 'On Line' mode only, regardless of connection mode (bi / monodirectional).



UPDATE command. It updates the DataBase of the local files only, without loading the configuration in the Target memory



TEST command. It checks the syntax of edited file and highlights possible incoherencies/ errors.




EXIT command. It closes Configuration Editor window.

21.2 TYPICAL IMPORT / EXPORT TASKS



As explained, Configuration Editor allows You to import (download) current configuration from the Target in order to easily edit/modify it. Once the editing task is accomplished, the new configuration file can be easily exported to the file in order to make it effective.

This is the procedure to follow.

- With the Target connected in Bi-directional mode, click the **IMPORT** icon : data transfer from the Target to the computer will be engaged. This could take from a few seconds to a few minutes, depending on the link speed.
- Once the import has finished, the Configuration Editor window will display the current, full Tiger Shark configuration, starting from 'hardware' data (in/out levels, selected audio input, etc) and then showing RDS data for each DataSet. Keys DS1, DS2, DS3 and DSA (DataSet Alternative) give direct access to configuration data of associated DataSet.
- De-select the 'Read Only Mode' option



Every time a new file is loaded, it is displayed in ReadOnly mode, in order to prevent from accidental modifications. Uncheck *ReadOnly* box prior to start editing the file.

- Edit the file using the provided tools. Pay particular attention to text layout (spaces, punctuation, etc).
- Once finished editing the text, click **TEST** tool (magnifying glass ) to check correct text formatting: in the event of syntax or typewriting errors, relevant text line will be automatically highlighted in bold. Appendix A contains full syntax of the Configuration Editor.
- Click **EXPORT** button : the edited configuration file will be automatically transferred to the Target. When file transferring ends, Tiger Shark will be on-line again, according to new configuration loaded.

EXAMPLE

To Increase MPX output level to +5.6 dB (default is 0.0 dB) follow these steps:

With the Target connected, click **IMPORT** icon  Wait for file loading


Go to [MPX_SETTINGS] section:

```
MPX_LEVEL=+0.0dBm
PILOT_LEVEL=-19.8dB
PILOT_PHASE=+0Deg
POST_CLIPPER_GAIN=+0.0dB
```


Deselect the 'Read Only Mode' ☐ **Read Only Mode** option


Type the new MPX output level:

```
MPX_LEVEL=+5.6dBm
```

Click **TEST** icon to check data consistency 

Click **EXPORT** icon 

In the meantime, the same configuration file may be saved (for example to load into another Target) by pressing  icon

The same file can be also **printed-out** 

Close the **Configuration Editor** window (Exit) 

21.3 EXPORTING ONLY SECTIONS OF A CONFIGURATION

The Tiger Shark Configuration file is composed by several sections, each of them ending with an 'End Point' marker.

You may export to the Tiger Shark only one of more sections instead of the entire file, in order to preserve some crucial operating parameters from tampering or risk of overwriting.

In other words, when clicking 'IMPORT' button, always the full configuration is downloaded but, when exporting back into the Tiger Shark, You may exclude from transferring one or ore sections, thus forcing the Tiger Shark to operate on the basis of data already in its memory.

For example, in case of a Tiger Shark version LIM+MPX+RDS, You may prevent to export the entire section associated with 'hardware' settings (input adjustment, pilot level, etc) with the exception of the first 3 lines (see here below) and update the Tiger Shark only for the 4 DataSets.

As explained in Appendix A, the first three lines **MUST** be always present in a configuration file:

```
TARGET_MODEL={ Tiger Shark_Rds , Tiger Shark_Mpx, Tiger Shark_Mpx/Rds, Tiger
Shark_Mpx/Lim , Tiger Shark_Mpx/Lim/Rds, Tiger Shark_Rds_Group , Tiger Shark_Mpx_Group ,
Tiger Shark_Mpx/Rds_Group , Tiger Shark_Mpx/Lim_Group , Tiger Shark_Mpx/Rds/Lim_Group }

FIRMWARE_VERSION={ 5.2.0 }
TARGET_NAME="Nome Target " (this name is ignored by the Target)
```

Concerning the remaining part of the file, You may omit all lines following **[END_+ SECTIONNAME]** identifier

Also Data Sets may be removed from the Configuration File, beginning from those of major index (for example, You may export DS1, DS2 and DS3 only, or DS1 and DS2 only, etc).

Tiger Shark presents the following **default settings**:

IP Address	192.168.000.020
Subnet Mask	255.255.255.000
IP Port	1327

Enter new settings in the relevant fields. For example, the picture above shows Tiger Shark programming with address 192.168.0.64, SubNet Mask 255.255.255.0 and Port 1336.

Click **SEND DATA** to up-load new settings into Tiger Shark memory.

Before disconnecting from the Target, it is advisable to check integrity and consistency of loaded data using the 'Reload Data' function, which access the Tiger Shark memory and shows its actual content.

Once the task is finished, click 'Quit' .



At every IP data change (address, Subnet Mask, Port), You will must wait 15 seconds before the new configuration becomes operative.



Whenever turning off/on the Tiger Shark, You must wait 15 seconds before the LAN board starts-up and becomes visible on the network.

You may always check current IP settings from the front panel menu on the Tiger Shark (SYSTEM INFORMATION, submenu Tcp/Ip Address, Tcp/Ip Port and Tcp/Ip S.Mask).

NOTE: refer to UECP normative for the use of ID List and Group List fields.

22 HOW TO CONTROL THE UNIT FROM WEB BROWSER

Tiger Tiger Shark can be controlled and configured in three different ways: by PC Control Software, by Front Panel menu and by Web Browser.

To establish a connection to the unit's Web Browser follow these steps:

1) Make sure the Tiger Shark has an IP address assigned to (SYSTEM INFORMATION -> TCP / IP ADDRESS in the Front Panel Menu). If IP address is not already assigned, check the relevant Chapter 'How to assign an IP Address' via the Pc Control Software.

2) Open your favourite Web Browser and type the IP address of the Tiger Tiger Shark you want to connect to.

Once you type the correct IP address in the Web Browser the following window will show up:



NOTE: Web Browser do not allow the user to fully configure the Tiger Shark. It rather allows to check the current status and make minor modifications to the configuration. Use the PC Control Software to fully configure the Tiger Shark.

23 STEREO GENERATOR – INPUT CHANGEOVER

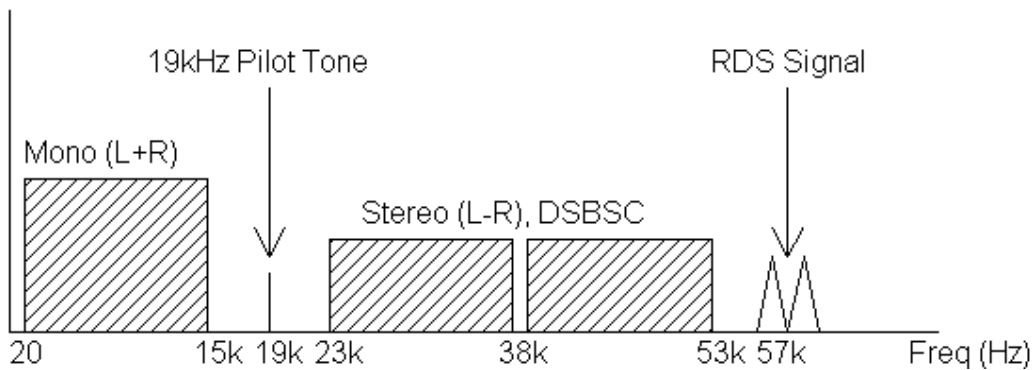
23.1 THE MPX SPECTRUM

We assume MPX signal is composed by three major **components**:

- audio signal (L and R channels)
- pilot tone (19Khz)
- RDS signal (57Khz)

The stereo encoding process modulates (double side-band suppressed carrier) the L-R or stereo difference signal onto a 38kHz sub carrier. Its side-bands will extend by +/- 15kHz. At the top end this will be 53kHz. Digital filter accomplishes all contents above 53 kHz are suppressed by the highest level. This precise spectral management contributes to loudness, since it ensures that no wasted energy is transmitted.

Please note that composite clipper does not degrade RDS signal quality because it is applied before the 19kHz pilot is added to the multiplex signal (if the pilot was present at the composite clipping stage, the third harmonic of the pilot caused by the clipping process will fall exactly on 57kHz, degrading the RDS).



Each component of MPX signal is generated digitally and therefore available at the highest quality.

23.2 AVAILABLE INPUTS

The Tiger Shark manages 4 input sources:

- a stereo **analog** audio pair
- a stereo **digital** audio pair
- an input for **external MPX**
- an **Mp3 Player** on SD Card (optional)



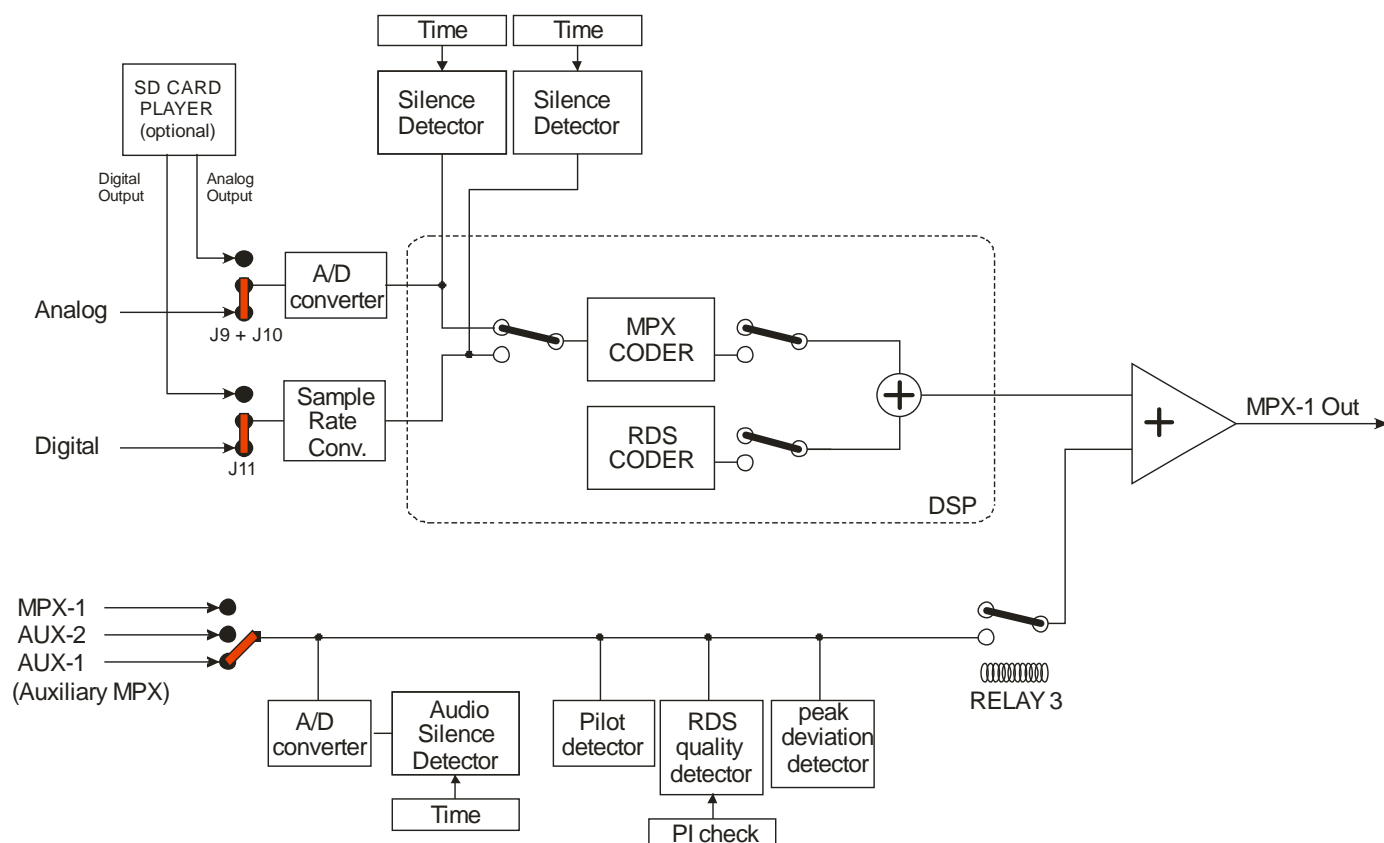
NOTE: Mp3 Player replaces, according to user requirements, either the analog input or the digital input, according to Jumper J9, J10, J11 position on the audio input card.

Selection between sources may be achieved

- **manually**,
- **automatically**, by **internal changeover stage** and silence detectors or
- by contact closure (**GPI input**).

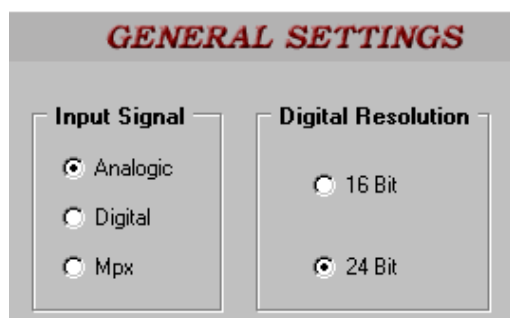
23.3 CHANGEOVER STAGE – BLOCK DIAGRAM

the following scheme depicts Tiger-hark management of 4 audio sources. Two Silence Detector stages are applied to analog and digital input rails, in order to drive automatic changeover between them whenever an audio 'blank' is detected on either inputs, lasting more than the set 'silence' time.



A third, independent audio silence detector may be applied to AUX-1, AUX-2 or Tiger Shark's output itself (by jumper-selection – see MPX card settings – Jumpers). Tiger Shark may pick-up an external MPX source and route it to its main MPX output.

23.4 HOW TO SELECT THE INPUT SOURCE



In the **General Settings** panel of the Pc Control software, You may select the (primary) source for the Tiger Shark stereo coder:

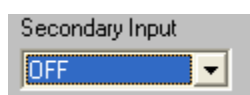
- analog audio (stereo input)
- digital audio (AES/EBU input)
- MPX = pass-through of an external **Auxiliary MPX** signal (by factory default connected to AUX-1 input).

In the event of digital sources, you are also required to set audio source **resolution** (16 or 24 bits / sample). Primary input audio source selection may be achieved also from:

- [Front panel](#) menu
- [Web server](#) (*General Settings* page)

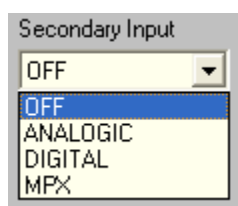
23.5 HOW TO TURN THE AUTOMATIC INPUT CHANGEOVER ON / OFF

TURNING OFF THE AUTOMATIC INPUT CHANGEOVER STAGE



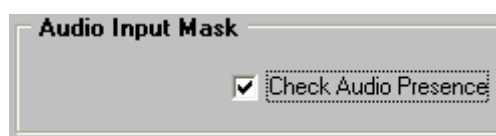
To prevent the Tiger Shark from automatically switch over a back-up source in the event of fault of Primary source (by silence detection), set '**Secondary Input**' drop-down menu in the **Audio Control** page to **OFF**.

TURNING ON THE AUTOMATIC INPUT CHANGEOVER STAGE



To get automatic switch over an alternative source, select the **alternative** (secondary) source from the '**Secondary Input**' drop-down menu in the **Audio Control** page.

MPX stands for 'Auxiliary MPX input (usually factory-associated to Aux-1 input)



You also need to enable audio changeover from the Audio Input Mask in the Audio Control page.



Make sure: Force Secondary Input from General Purpose Input 1' in the **MPX** page is **NOT** ticked.

23.6 DEFINITION OF CHANGEOVER PARAMETERS AND TERMS

NAME	DEFINITION	SET from:	VALUES
Primary Input	Default / main Tiger Shark input	Input Signal menu in the General Settings page	Analog, digital, Auxiliary MPX
Secondary Input	Alternative source. It may be picked-up in automatic mode (by automatic input changeover) or by external command applied to GP1 Logic Input	'Secondary Input' menu in the Audio Control page	Analog, digital, Auxiliary MPX
Switching Time	Time delay between the loss of valid audio and switch onto the alternative (secondary) input source	'Switching Time' menu in the Audio Control page	1 to 120 secs, user adjustable
Recovery Time	Time delay between the return of valid audio and switching back onto the Primary source	'Recovery Time' menu in the Audio Control page	5 secs or 5 minutes, user adjustable
Threshold level	Reference level to consider primary source as lost	Not user-adjustable	Factory preset.

23.7 AVAILABLE CONTROLS OVER EXTERNAL AUXILIARY MPX



NOTE: Detector stages for Auxiliary MPX input (Audio silence; Pilot, RDS; Peak deviation detectors) are available with the Tiger Shark 'DET' option installed only. .See next Paragraph

The Tiger Shark may look after the following MPX parameters / parts and change to an alternative source accordingly to user settings done in the 'MPX' page:

MPX SETTINGS

Mpx Signal

Mpx Level +0.0dBm Sync Out ☐
-9dBm 0 +15dBm

Pilot Level -21.0dB
Off -15.5dB

Pilot Phase +0°
-12 Deg 0 +12 Deg

Post Gain +0.0 dB
-6 dB 0 +6 dB

Auxiliary Mpx Source

☐ Check for Auxiliary Mpx Deviation ☐ Check for Rds Presence and specific Rds PI in Auxiliary Mpx : 5000

☐ Check for Audio presence in Auxiliary Mpx

☐ Check for Pilot presence in Auxiliary Mpx ☐ Force Secondary Input from General Purpose Input 1

ESC

Output Mode

Normal Operation ☒

Test Tone ☐

Preemphasis

Off ☒

50 uSec ☐

75 uSec ☐

Aux Reference

AUX Reference

+0.0 dBm

Send

MPX Mode STEREO

CONTROL NAME	DESCRIPTION
Check for Auxiliary Mpx Deviation	Changeover stage checks deviation of external MPX applied by default to Aux-1 input. Input signal is considered as not valid if deviation exceeds 80 kHz for repeated times.
Check for Audio Presence in Auxiliary Mpx	Changeover stage checks presence of audio part (Main + SUB) in the external MPX applied by default to Aux-1 input. Input signal is considered as not valid if audio part is lost.
Check for Pilot Presence in Auxiliary Mpx	Changeover stage checks presence of Pilot in the external MPX applied by default to Aux-1 input. Input signal is considered as not valid if Pilot is not present.
Check for RDS Presence and specific PI in Auxiliary Mpx	Changeover stage checks presence of RDS modulation in the external MPX applied by default to Aux-1 input. Input signal is considered as not valid if RDS is not present. Furthermore, if the PI box contains a valid PI (Program Identifier) code, Tiger Shark verifies that source PI equals PI stated in the box. If not, the source MPX signal is considered not valid. NOTE: to disable PI check, leave PI code = 0000.
AUX Reference	This parameter permits to insert the reference to use for for Monitor Aux, range from -9 dBm to 12 dBm in step of 0.1 dBm

23.8 SUMMARY TABLE FOR CHANGEOVER OPERATION

SWITCHING		CAUSE FOR SWITCH	SETTINGS REQUIRED	BEHAVIOUR
FROM	TO			
ANALOG Audio input	DIGITAL Audio input	Audio loss = audio under threshold	Input Selection = Analogue Secondary input = Digital Check Audio Presence = ticked All remaining checks = not ticked	In the event of analog audio loss, changeover stage waits for a time equal to Switching Time prior to switch over the digital source. As soon as Analogue audio resumes, it waits for 5 seconds or 5 minutes (Recovery Time) prior to switching back.
ANALOG Audio input	DIGITAL Audio input	GP1 command	Input Selection = Analogue Secondary input = Digital Check Audio Presence = not ticked All remaining checks = not ticked	GP1 logic input drives input switching
DIGITAL Audio input	ANALOG Audio input	Audio loss = audio under threshold	Input Selection = Digital Secondary input = Analogue Check Audio Presence = ticked All remaining checks = not ticked	In the event of digital audio loss, changeover stage waits for a time equal to Switching Time prior to switch over the analog source. As soon as Digital audio resumes, it waits for 5 seconds or 5 minutes (Recovery Time) prior to switch back.

DIGITAL Audio input	ANALOG Audio input	GP1 command	Input Selection = Analogue Secondary input = Digital Force Secondary input from GP1 = ticked All remaining checks = not ticked	GP1 logic input drives input switching
ANALOG Audio input	Auxiliary MPX	Audio loss = audio under threshold	Input Selection = Analog Secondary input = MPX Check Audio Presence = ticked All remaining checks = not ticked	In the event of analog audio loss, changeover stage waits for a time equal to Switching Time prior to switch over the Auxiliary MPX source. As soon as Analogue audio resumes, it waits for 5 seconds or 5 minutes (Recovery Time) prior to switching back.
ANALOG Audio input	Auxiliary MPX	GP1 command	Input Selection = Analogue Secondary input = MPX Force Secondary input from GP1 = ticked All remaining checks = not ticked	GP1 logic input drives input switching
SWITCHING		CAUSE FOR SWITCH	SETTINGS REQUIRED	BEHAVIOUR
FROM	TO			
DIGITAL Audio input	Auxiliary MPX	Audio loss = audio under threshold	Input Selection = Digital Secondary input = MPX Check Audio Presence = ticked All remaining checks = not ticked	In the event of digital audio loss, changeover stage waits for a time equal to Switching Time prior to switch over the Auxiliary MPX source. As soon as digital audio resumes, it waits for 5 seconds or 5 minutes (Recovery Time) prior to switching back.
DIGITAL Audio input	Auxiliary MPX	GP1 command	Input Selection = Digital Secondary input = MPX Force Secondary input from GP1 = ticked All remaining checks = not ticked	GP1 logic input drives input switching
Auxiliary MPX	ANALOG / DIGITAL Audio input	Lack of audio components (MAIN / SUB) in Auxiliary MPX	Input Selection = MPX Secondary input = ANALOG (DIGITAL) Check for Audio presence in Auxiliary MPX = ticked All remaining checks = not ticked	Auxiliary MPX source is routed to Tiger Shark output being monitored at the same time. In the event MPX audio part (Main / Sub) is lost, changeover stage waits for a time equal to Switching Time prior to switch over self- generated MPX signal from analogue (digital) stereo input. As soon as Auxiliary MPX audio resumes, it waits for 5 seconds or 5 minutes (Recovery Time) prior to switching back.
Auxiliary MPX	ANALOG / DIGITAL Audio input	Lack of Pilot in Auxiliary MPX	Input Selection = MPX Secondary input = ANALOG (DIGITAL) Check for Pilot presence in Auxiliary MPX	Auxiliary MPX source is routed to Tiger Shark output being monitored at

			= ticked All remaining checks = not ticked	the same time. In the event Auxiliary MPX Pilot is lost, changeover stage waits for a time equal to Switching Time prior to switch over self-generated MPX signal from analogue (digital) stereo input. As soon as Auxiliary MPX Pilot resumes, it waits for 5 seconds or 5 minutes (Recovery Time) prior to switching back
Auxiliary MPX	ANALOG / DIGITAL Audio input	Extra-deviation in the Auxiliary MPX	Input Selection = MPX Secondary input = ANALOG (DIGITAL) Check for Auxiliary MPX Deviation = ticked All remaining checks = not ticked	Auxiliary MPX source is routed to Tiger Shark output being monitored at the same time. In the event Auxiliary MPX Deviation exceeds 80 kHz, changeover stage waits for a time equal to Switching Time prior to switch over self-generated MPX signal from analogue (digital) stereo input. As soon as Auxiliary MPX Pilot resumes, it waits for 5 seconds or 5 minutes (Recovery Time) prior to switching back
Auxiliary MPX	ANALOG / DIGITAL Audio input	Lack of RDS in Auxiliary MPX	Input Selection = MPX Secondary input = ANALOG (DIGITAL) Check for RDS Presence = ticked, with PI = 0000. All remaining checks = not ticked	Auxiliary MPX source is routed to Tiger Shark output being monitored at the same time. In the event RDS is lost in the Auxiliary MPX, changeover stage waits for a time equal to Switching Time prior to switch over self-generated MPX signal from analogue (digital) stereo input. As soon as Auxiliary MPX Pilot resumes, it waits for 5 seconds or 5 minutes (Recovery Time) prior to switching back.
Auxiliary MPX	ANALOG / DIGITAL Audio input	Lack of RDS in Auxiliary MPX or PI (Program Identifier) code incorrect	Input Selection = MPX Secondary input = ANALOG (DIGITAL) Check for RDS Presence = ticked, with PI = Reference Code to be compared to the received one All remaining checks = not ticked	Auxiliary MPX source is routed to Tiger Shark output being monitored at the same time. In the event RDS is lost or the RDS carried PI code differs from the stated one, changeover stage waits for a time equal to Emergency Time prior to switch over self-generated MPX signal on the basis of analogue (digital) stereo input. As soon as Auxiliary MPX Pilot resumes, it waits for 5 seconds or 5 minutes (Recovery Time) prior to

				switching back.
Auxiliary MPX	ANALOG / DIGITAL Audio input	GP1 command	Input Selection = MPX Secondary input = ANALOG (DIGITAL) Force Secondary input from GP1 = ticked All remaining checks = not ticked	GP1 logic input drives input switching from Auxiliary MPX to Analog / Digital stereo source

23.9 HOW TO KNOW WHICH INPUT SOURCE IS CURRENTLY ON-AIR

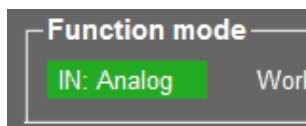
ON THE FRONT PANEL



Stable LED indicates selected and valid Primary source

Blinking LED indicates that an emergency input switching has occurred and which is the Emergency source currently on air.

ON THE WEB BROWSER

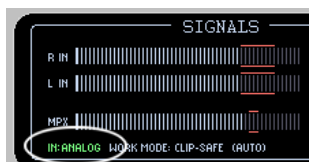


A **green mask** indicates selected and valid Primary source

A **red and blinking mask** indicates that an emergency input switching has occurred and which is the Emergency source currently on air

ON THE PC CONTROL SOFTWARE

With the Tiger Shark unit connected in **bidirectional way** to its Pc Control software:



A **green label** indicates selected and valid Primary source



A **red and blinking label** indicates that an emergency input switching has occurred and which is the Emergency source currently on air

ON THE OUTPUT RELAYS (GPO PORT)

Closing of **1° Relay** -> Analogue source on air

Closing of **2° Relay** -> Digital source on air

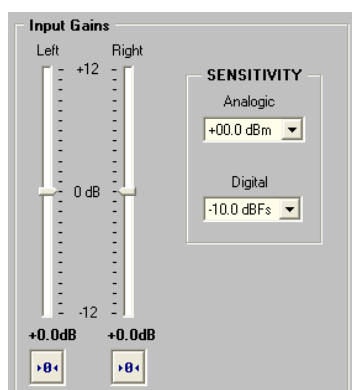
Closing of **3° Relay** -> Auxiliary MPX source on air

Closing of **4° Relay** -> Emergency (Emergency / BackUp source on air)

See Appendix for Relay Port pin-out.

24 STEREO GENERATOR –LEVEL AND WORKING MODES

24.1 INPUT AUDIO LEVEL CONTROL



Input level control stage is actually based on two sub-controls: sensitivity adjustment and 'fine' tuning, independent for channels Left and Right.

Right Gain (applies to either analog or digital sources). It may adjusted in + /- 12 dB range with 0.1 dB step. Default: 0 dB.

Left Gain (applies to either analog or digital sources). It may adjusted in + /- 12 dB range with 0.1 dB step. Default: 0 dB.

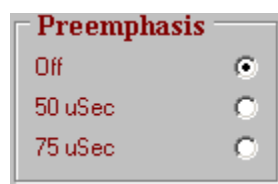
Sensitivity: different for analog and digital sources, it may adjusted in 0.1 dB steps. Analog: + 15 dBm to – 9 dBm. **Digital:** from 0.0 dBfs to – 24.0 dBfs.

Two buttons allows to **Return** automatically to **Zero** (RTZ) level on Input L/R Gains.



Input gains controls are automatically disabled when automatic Working Modes are engaged (*Clipper MPX* and *LogClipper*)—see next paragraphs.

24.2 SETTING THE OUTPUT PRE-EMPHASIS



(MPX panel / Preemphasis): it may be set to Off, 50uSec (as in use in European countries), 75uSec.

NOTE: Only one pre-emphasis must be kept active in the transmitting chain. It is advisable to turn OFF the Tiger Shark pre-emphasis and enable the pre-emphasis generated by the audio processor. This because a pre-emphasis filter applied at the last step of an audio chain emphasizes 'payload' signal along with possible noise, thus resulting

in a degraded performance of the whole system.



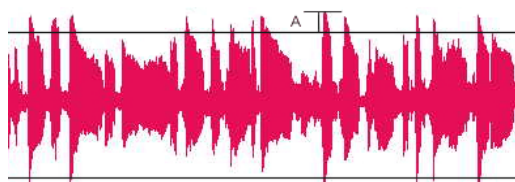
It is advisable to set the right Pre-emphasis as first step, as it affects the MPX generated level and thus the whole level tuning process described in these pages.

24.3 SUMMARY OF AVAILABLE AUDIO WORKING MODES

24.3.1 INTRODUCTION

6 automatic modes plus 3 manual working modes are available.

In **automatic** modes, Tiger Shark automatically adjusts audio input levels (L/R gains) and AGC level in order to 'size' the portion of audio signal clipped by MPX Clipper (see '**A**' **amplitude portion** in the picture here below, exceeding clipper trimming amplitude) and thus get control over resultant density of aired MPX signal. 3 modes (**Safe, Normal or Aggressive**) are available.



Clipper threshold applied to input signal. Depending on the chosen Clipper mode, a variable portion of the signal will be cut-out by the clipper, resulting in an increased density.

In addition to a 'brutal' cut, user may choose 3 alternative clipping modes, described as 'LogClipper' modes, which perform a smoother clipping factor following a *logarithmic* curve. LogClipper modes also may be set as **Safe, Normal or Aggressive clipping modes**, depending on the kind of desired clipping mode.

3 manual clipping modes are available (2 with no Clipper intervention, one with Clipper intervention). By choosing one of those modes, Tiger Shark behaviour is identical to a traditional, non-automatic Stereo Generator. Input Gain controls are in these cases fully user-adjustable.

CLIPPING VS LIMITING

In addition to Clipping, THE Tiger Shark features a built-in audio limiter.

While deviation overshoots are cut-out by MPX Clipper, fast changes in the input audio levels are 'normalized' by the Limiter stage, thus concurring to keep as much constant as possible the audio level at the MPX Clipper input. Typically, Limiter stage is proven helpful in presence of quick 'jumps' in input levels, such as those occurring when switching between different studios, when switching from normal audio program to Advertisement spots, etc).

2 Limiter modes are available: see next chapter for further reference.

MODE	TYPE	DESCRIPTION / NOTES
Linear	Manual	Tiger Shark' behaviour is totally similar to that of an analog, traditional stereo encoder. There is <u>no MPX clipper intervention</u> . Max output deviation is 100 kHz. Input headroom around 10 dB.
Linear Full Range	Manual	Tiger Shark' behaviour is totally similar to that of an analog, traditional stereo encoder. There is <u>no MPX clipper intervention</u> . There is <u>no deviation limit</u> . Input headroom is around 20 dB. All signal components (including filter overshoots) will contribute for the final deviation on-air. Main signal deviation (and therefore signal 'loudness') will be therefore significantly lower than by using a well-tuned Clipper.
MPX Clipper	Manual	MPX Clipper stage is enabled. Audio input levels are fully adjustable. The portion of clipped audio signal is user-definable. being Clipper stage enabled, the generated signal will have a strong 'presence' effect, as it exploits the entire

		deviation range available. This operating mode is <u>always recommended</u> .
MPX Clipper SAFE	Auto	AGC stage is engaged and input levels are automatically adjusted, in order that only very small peaks (0.2 or 0.3 dB of amplitude) will cross the clipper threshold and they will therefore cut-off by the MPX clipper itself. <u>This mode preserves in the highest degree original audio program.</u>
MPX Clipper NORMAL	Auto	AGC stage is engaged and input levels are automatically adjusted, in order that only medium peaks (0.7 or 0.8 of amplitude) will cross the clipper threshold and they will therefore cut-off by the MPX clipper itself. <u>This will result in an increased 'mean' volume</u> , even if a slight distortion could appear with a 'out-of-band' energy.
MPX Clipper AGGRESSIVE	Auto	AGC stage is engaged and input levels are automatically adjusted, in order that large peaks (1.2 or 1.3 dB of amplitude) will cross the clipper threshold and they will therefore cut-off by the clipper itself. This will result in an <u>increased density</u> , even if distortion could appear with a consistent 'out-of-band' energy.
LOG Clipper SAFE	Auto	AGC stage is engaged and input levels are automatically adjusted, in order that only a 'small' portion of that signal is clipped smoothly, accordingly to a logarithmic curve. Input Gain controls are also automatically adjusted by Tiger Shark.
LOG Clipper NORMAL	Auto	AGC stage is engaged and input levels are automatically adjusted, in order that a 'medium' portion of that signal is clipped smoothly, accordingly to a logarithmic curve. Input Gain controls are also automatically adjusted by Tiger Shark.
LOG Clipper AGGRESSIVE	Auto	AGC stage is engaged and input levels are automatically adjusted, in order that a 'large' portion of that signal is clipped smoothly, accordingly to a logarithmic curve. Input Gain controls are also automatically adjusted by Tiger Shark.

24.4 HOW TO ADJUST THE INPUT GAIN ON MANUAL WORK MODES

This section should be performed for both the analog and digital audio inputs. The Tiger Shark will store level settings for each separately allowing to switch between analog and AES/EBU inputs without resetting the input level. Note that there are different controls for calibrating digital versus analog audio inputs.



BEFORE CALIBRATION, MAKE SURE YOU HAVE PREEMPHASIS SET TO THE APPROPRIATE TIME FOR YOUR APPLICATION AS THIS WILL AFFECT THE OUTPUT LEVEL.

At this moment, **Warning LED** on the front panel might flash due to Audio Input overload and/or MPX signal exceeding deviation limit. Proper overall Clipper stage tuning coincides with **Warning LED turning off**. Therefore Audio input calibration might be not able to accomplish this condition.

Access the INPUT-MONITOR PAGE on the front panel Menu (or take a look to the left upper blackboard on the Pc control software and web browser screens).

It can have 3 different graphic forms, depending whether the Clipper is active or not and which Linear mode is engaged (Full Range or Linear):

24.4.1 LINEAR MODE



Nominal Input Level

With a 0 dB MPX level, **Nominal Input Level** reference indicates the input audio level (peak level) which corresponds to 75 kHz deviation. Sensibility and Gain controls should be adjusted so that the input program peak level coincides with the 100% modulation 'ceiling'.

Note: Setup should be performed for both the analog and digital audio inputs. The Tiger Shark will store your level settings for each input separately allowing you to switch between analog and AES/EBU inputs without resetting the input level. Note that there are different controls for calibrating digital versus analog audio inputs.

↶ The Sensitivity Level (Analog or Digital) parameter sets the gain for both channels. After adjustment, peak indication hitting the **Nominal Input reference** point on the display or a little higher (see picture here below) is proper. This corresponds to 10 dB system headroom.

↶ If further gain or attenuation is required, the individual **left/ right Gains** can be adjusting using the Input Left and Input Right controls

An optimal calibration of Left/Right input levels is displayed here- below.



Be aware that **well-defined audio peaks are achieved only with processed audio signals**. Otherwise, no precise calibration of input signal will be possible.

After digital or analog input calibrating, You may set the analog level of the composite signal on the BNC connector. Please adjust the **Post Gain + MPX level controls** until you reach the desired modulation level.

24.4.2 LINEAR – FULL RANGE



Nominal Input Level

If a better headroom / input dynamic range (than the Linear Mode) is required, **LINEAR-FULL RANGE** input mode is provided. No clipping and no deviation limit is applied to signal processing in this case. Input headroom ranges up to 20 dB and an overall MPX level control is not provided. Nominal input level reference is nearer to the left margin than in the Linear Mode – MANUAL .

Note: Setup should be performed for both the analog and digital audio inputs. The Tiger Shark will store your level settings for each input separately allowing you to switch between analog and AES/EBU inputs without resetting the input level. Note that there are different controls for calibrating digital versus analog audio inputs.

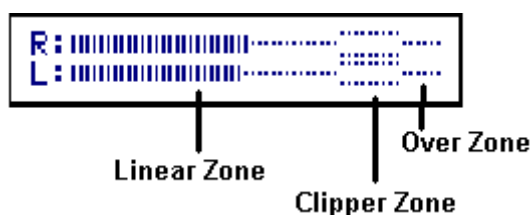
- 1) The Sensitivity Level (Analog or Digital) parameter sets the gain for both channels. After adjustment, peak indication hitting the **Nominal Input reference** point on the display or a little higher (see picture here below) is proper. This corresponds to around 20 dB system headroom.
- 2) If further gain or attenuation is required, the individual **left/ right Gains** can be adjusted using the Input Left and Input Right parameters

With Post Gain control set to 0 dB, the reference point displayed in the picture indicates the audio peak level associated to a 75 kHz deviation.

After digital or analog input calibrating, You may set the analog level of the composite signal on the BNC connector. Please adjust the **Post Gain control** until you reach the desired modulation level.

24.4.3 CLIPPER MODE

Metering scale is divided into **three** zones.



Linear Zone	This identifies the portion of audio signal that is affected only by Low-Pass / Preemphasis filters. No alteration due to the clipping is introduced. Signal is only affected by input filters and pre-emphasis.
Clipper Zone	This identifies the portion of audio signal being clipped.
Over Zone	This identifies a ' <u>distortion</u> ' zone, which is related to a 'out-of-band' energy. Signal ranging in this zone should be avoided.

With a signal ranging in the Linear zone, You will need to increase sensitivity or Gain in order to get a signal hitting the Clipper Zone. In the following pages two preferred ways are described: with 100% Modulation Tone and with Processed Audio Signal.

CLIPPER MODE - CALIBRATION THROUGH REFERENCE TONE

- 1) Apply a Reference Tone (such as the Ref Tone generated by Falcon 15, Falcon 35 and Falcon 50 by Axel Technology) at its maximum level to the Tiger Shark analog or AES/EBU inputs. This will ensure right headroom when using pre-emphasis. The Peak Tone identifies the maximum peak value of the audio and MPX signals reached by the equipment
- 2) Select the INPUT Module Setup menu and adjust the Sensitivity Level (Analog or Digital) control. After adjustment, peak indication hitting the left margin of Clipper zone is proper (see picture here below). This corresponds to a around 20 dB system headroom.
- 3) If further gain or attenuation is required, the individual left/ right Gains can be adjusted using the Input Left and Input Right parameters.

Following this calibration procedure, audio material will be kept unaltered and only spurious signal will be clipped.



- 4) Enable normal audio processing on the audio processor.

Depending on the input level and on the audio material contents, audio peak will range between 1 and 8 segments on the meter reference scale.

This peak increase on dynamic conditions is due to overshoot of input digital filter.

An overshoot of 3-4 segments (around 1 dB) may be deemed acceptable in case of disabled Tiger Shark preemphasis and an overshoot of 6-7 segments may be deemed acceptable in case of enabled Tiger Shark preemphasis.

As practical rule, if the audio peak ranges in the left half of Clipper Zone, possible overshoots will be compensated by Tiger Shark filters.

The following picture displays two acceptable calibrations:



The following picture displays two unacceptable calibrations (please, adjust Gain controls until peak ranges in the left half Clipper Zone):





An audio material which is Preemphasized-only (i.e. not processed) may create very high peaks (over 13 dB). In this case, no accurate modulation control can be accomplished.

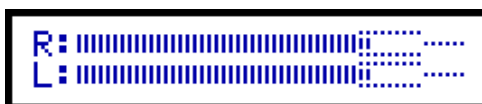
CLIPPER MODE - CALIBRATION TROUGH PROCESSED AUDIO MATERIAL

This setup procedure presupposes no reference Tone is available and that Tiger Shark is fed by the output of an audio processor properly adjusted.

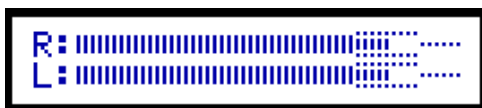
As explained, this external audio processor must maintain program peaks at a ceiling value corresponding to 100 % modulation. Furthermore, it should add proper pre-emphasis.

Three Clipper calibration modes are possible: **Protective, Normal, Aggressive.**

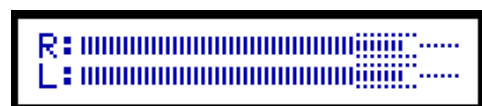
Protective Clipper calibration is accomplished when audio peaks hit only the **first two segments** of the Clipper Zone. This allows a very 'clean' modulation, without any audible distortion



Normal Clipper calibration is accomplished when audio peaks hit the **center point** of the Clipper Zone. This allows a good ratio between loudness and distortion



Aggressive Clipper calibration is accomplished when audio peaks hit **higher than the middle point** of the Clipper Zone. This allows a very loud sound



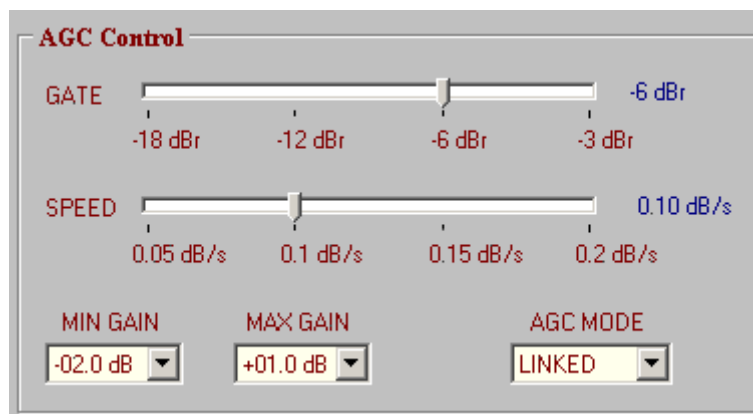
REMARKS:

For a safer modulation, audio peaks should never exceed the Clipper Zone.

24.5 AGC STAGE - SETTINGS AND OPERATIONS

AGC STAGE is active only whenever an automatic working mode (either 'Clipper', or 'LogClipper') is engaged.

AGC controls are grouped in the *Audio Control* panel



GATE It sets the intervention AGC threshold. It is rated in dBr, with reference to an audio signal generating a 100 % modulation. Default value is – 6 dBr.

SPEED It sets the AGC action speed. It is rated in dB per second.

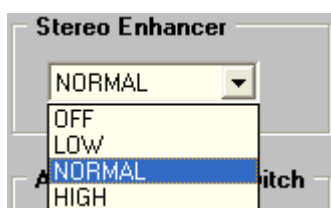
MIN GAIN It sets the max reduction factor applied by the AGC stage to the input signal. For example, -3.6 dB means that the input signal will be reduced by max 3.6 dB.

MAX GAIN It sets the max amplification factor applied by the AGC stage to the input signal. For example, +2.8 dB means that the input signal may be increased by 2.8 dB at the maximum.

AGC MODE In *UnLinked* mode, the AGC stage acts separately on the Left and Right channel (and thus may compensate for difference in levels between them) while in *Linked* mode both channels are subject to a unified control.

24.6 STEREO ENHANCER CONFIGURATION

The Stereo Enhancer stage compensates, in a 'virtual' mode, for a stereo image partially corrupted or altered by the STL.



There are 4 levels available: Off, Low, Normal and High.

It is recommended to set Low or Normal levels if a Stereo Enhancer is already provided in the audio processor or the link between the audio processor and the Tiger Shark doesn't alter in a strong way the original signal (for example whenever they are linked by a straightforward audio cable)

25 STEREO GENERATOR - LIMITER STAGE CONFIGURATION

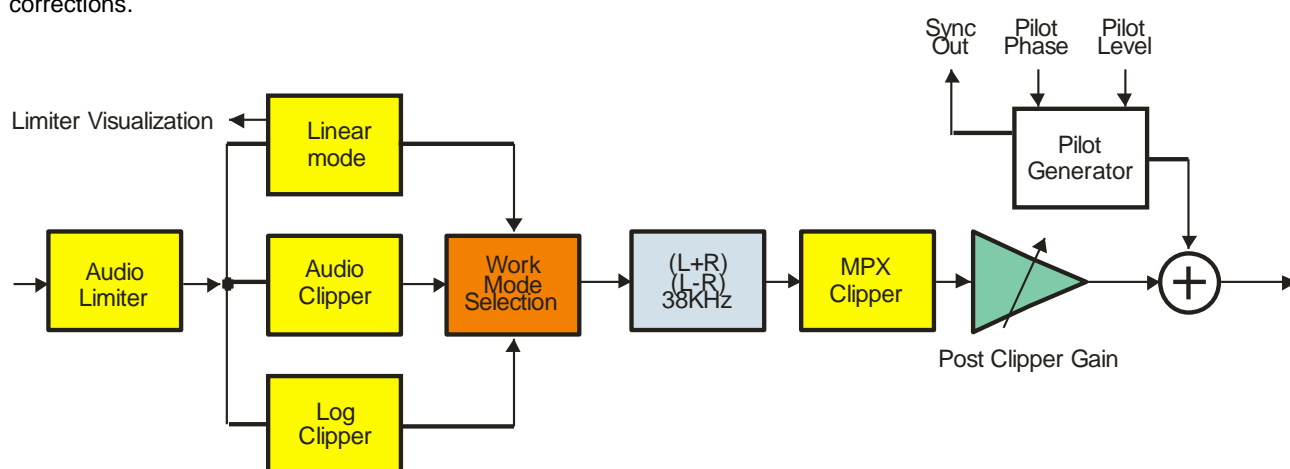
25.1 INTRODUCTION

Even In presence of a well-controlled signal at the output of the audio processor, the STL (satellite link, terrestrial link, ISDN, etc) may introduce errors and distortions which usually appear as undesired peaks (as high as 100 or more KHz of deviation, assuming 75 KHz mean value). Those peaks (also called 'overshoots') never carry 'payload' information and they are usually cut-off by the clipper.

The Limiter stage is recommended to control those extra-threshold components (such as sudden change in the mean audio levels) lasting longer than overshoots.

Each time a signal is clipped, an 'out-of-band' noise which affects MPX output is generated. In presence of short, fast peaks, that noise will be not very likely appreciable. But with overshoots lasting for sufficient time, then the Limiter will help in reducing the 'out-of-band' energy (small clipping) and **keeping the MPX output as 'clean' as possible**.

Limiter stage and AGC stage act in a different manner. As the AGC response speed is not comparable to the Limiter intervention time, the Limiter is recommended to correct fast input variations, while the AGC performs long-term corrections.



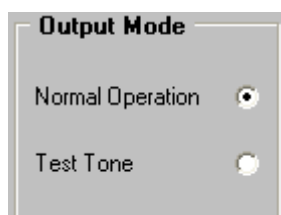
25.2 OPERATING MODES

The **LIMITER** stage can be engaged at the user' willing. It comes before the traditional Clipper or Logclipper stages and its benefits are described at the following page. Three LIMITER operating modes are available:

MODE	DESCRIPTION
OFF	The Limiter stage is disengaged
HIGH PROTECTION	<p>Protection is given by combined action of a Limiter and a Compressor stage. Action range for the Limiter stage is around 1 to 1,5 dB. In the event the input signal has a larger level range, the Compressor stage helps reducing input level to the max one compatible with the Limiter stage. This mode privileges audio quality (= low distortion) in respect of increasing output density.</p> <p>PROS: even in the event the input program is affected by unexpected changes in levels by 3 or 4 dB (such as those occurring in presence of switching between studios, advertisement breaks, etc), there are no distortions on the output.</p> <p>CONS: output density can not be increased by more than around 1 dB.</p>
LOW PROTECTION	<p>Protection is given by Limiter stage only. Action range for the Limiter stage is around 1 to 1,5 dB. This setting is very effective when dealing with signals exceeding the Clipper threshold by 1 dB max</p> <p>PROS: output density can be increased with (theorically) any limit</p> <p>CONS: If input signal has variations in its level of more than 1,5 dB, MPX signal density will increase but with a noticeable distortion degree.</p>
LOOKAHEAD	<p>Tiger Shark introduce a Heavy-Hard limiting, using a predictive mode called "LookAhead". This special mode allows to achieve the maximum protection over 60kHz-band, and the 19kHz and 57kHz maximum protection. This lookahead introduce a delay of 2ms, bringing the total group delay around 5ms. It is not really suggested if your target is Density and Presence in relation to the total signal quality. With Lookahead the Pilot (19kHz) is protected more than 80dB, for RDS more than 70dB and a total noise in band 60 – 100 kHz better than > 80dB</p> <p>PROS: High pilot and RDS protection, low WB noise, if signal could be over 3dB</p> <p>CONS: Quality and Density modified.</p>

26 STEREO GENERATOR - MPX OUTPUT SIGNAL

26.1 CONFIGURATION OF THE OUTPUT: NORMAL, PEAK TONE



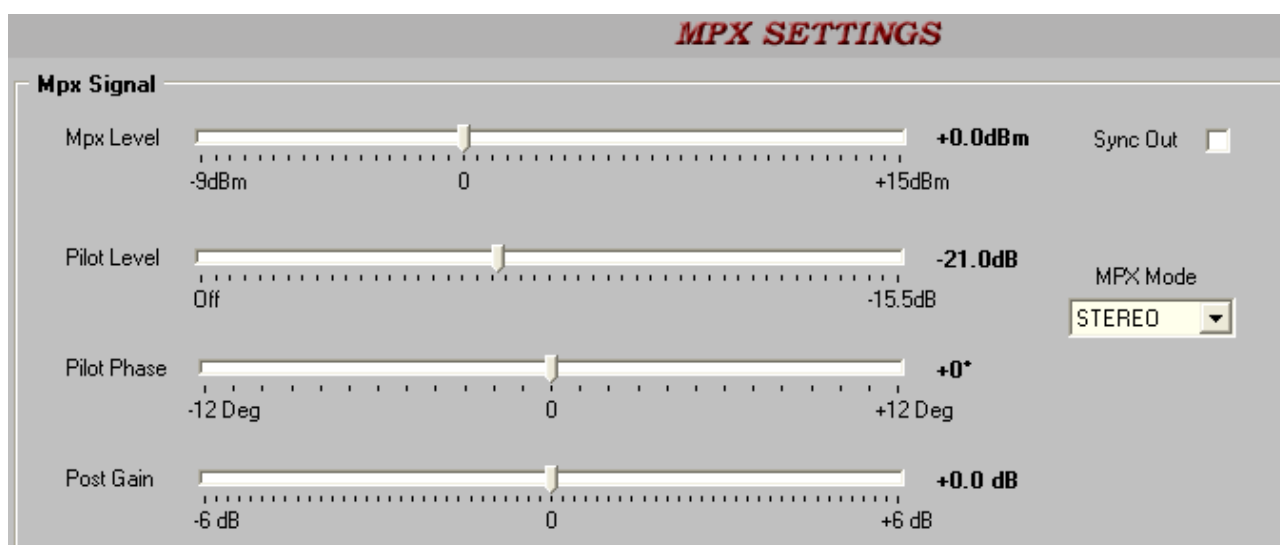
Output Mode : it sets the Tiger Shark operating mode:

The **Normal Operation** refers to the regular operating status, with all features available.

In the **Peak Tone Reference** mode, the Tiger Shark outputs a reference tone consisting of a 500 Hz / 0 dBm sinusoidal signal. This tone corresponds to the maximum frequency deviation. This is helpful for an easier transmitting chain set-up.

26.2 PILOT PHASE AND LEVEL + MPX SIGNAL LEVEL

Level and phase of the MPX Pilot are adjustable from the Pc Control software panel as well as from the Front Panel menu and from the Web Browser.



You may also choose between a Stereo or a Mono broadcasting using the relevant drop-down menu (MPX Mode). Mono mode will turn off the Pilot and associated controls.

MPX Level it adjusts the overall level of the Stereo Composite Signal (MPX) and/or RDS signal (with or without signals injected from Aux 1 and 2 mixed into). Factory preset: 0 dBm (2.2 Vpp).

In the RDS version only, the output may be magnified by an extra-gain of 6, 12 or 18 dB (from the Front panel menu only)

Post Clipper Gain it adjusts the Gain after the clipping stage (see block diagram). It may adjusted in the + / - 12 dB range, 0.1 dB steps. Default value is 0 dB. **See next paragraph.**

26.3 MPX SIGNAL CALIBRATION – THE POST CLIPPER GAIN

The output MPX Composite signal is composed by:

- RDS signal (whenever present)
- Audio components (L+R and L-R spectrums)
- Pilot 19 kHz

RDS and PILOT are fixed (invariable) parts in the MPX signal, while Audio Components are variable ones.

To adjust MPX output level it is recommended to start with setting desired level for fixed components in the MPX signal (Pilot and RDS) and then adjust the variable part (audio) to get 75 kHz peak deviation.

STEP 1: Adjust Pilot signal level via the MPX_Pilot Menu (recommended value: **- 20 dB**),



STEP 2: Adjust RDS signal level via the RDS Level menu (recommended value: **-31.5 dB**)



Pilot and RDS levels are expressed in Decibel (dB) with reference to the Reference Tone (500 Hz, 0 dB). If this tone is related to a Fm 75 kHz deviation, Pilot will cause a 7.5 kHz deviation (-20dB) and RDS will cause a 2 kHz deviation (-31.5 Db)

STEP 3: Once Pilot and RDS signals have been calibrated, adjust audio component via **Post Clipper Gain** control until the deviation hits 75 kHz reference :



The 100% modulation level (correspondent to 75 kHz with 0 dB Gain on MPX level control) is indicated by the second point in the 'highlighted' Zone (see picture).



The **third point** corresponds to a **80 kHz** deviation with 0 dB Gain on MPX level control.

Higher modulation levels will cause WARNING LED lighting on the front panel. That LED indicates a modulation level exceeding 5 kHz the nominal one and/or a saturation on audio input stage.

STEP 4: Adjust the overall to apply the desired amplification / attenuation factor to nominal MPX level achieved at the Step 3.

27 RDS / RBDS GENERATOR – GENERAL SETUP



All info provided on this Chapter applies to both RDS and RBDS generation, unless differently noticed.



RBDS operation on the Tiger Shark is achieved by installing the Tiger Shark Remoter control software in its RBDS version.

The RDS controls related to phase and levels are available from the Front Panel, while any other configuration about texts, RDS data, etc is achievable from the Pc Control Software as well as from the UECP.

Tiger Shark encoder provides two different programming modes. The first one is fully compliant to the last UECP normative.

The second one ('Extended') provides a wider range of features, which have been customized in order to make Tiger Shark encoder more versatile and suitable for the most part of user requirements. In this case some commands are not UECP compliant

When using the Remoter software, data configuration may be achieved in a textual / ASCII form (through the Configuration Editor) or from the regular Remoter pages.

TIME 03:00:48	RDS STATUS DS:01 PS:00 RT:00 PTY/PIN:00
DATE 04/06/02	EXTERNAL HARDWARE INPUTS I1:0 I2:0 I3:0 I4:0 I5:0

Current status of on-air RDS services can be constantly monitored from the small black screen at the upper left corner of the Tiger Shark Remoter screen.

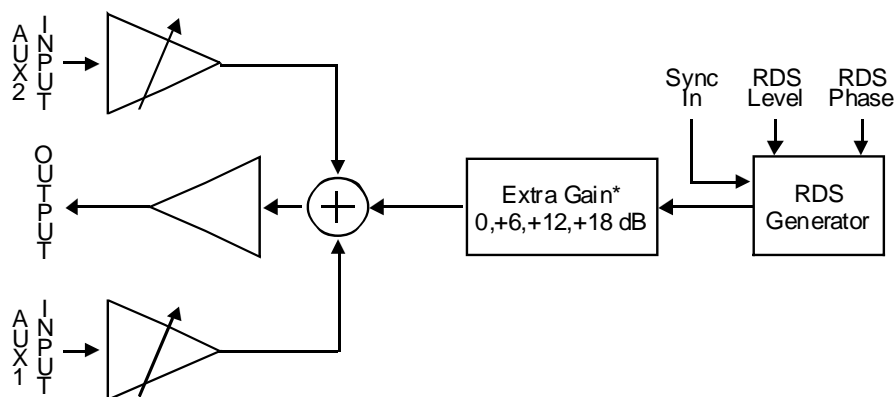
The contents shown in the next pages refers either to the Tiger Shark in RDS version only, or to the Tiger Shark in the LIM-MPX-RDS version.

Anyway, there are differences between the versions.



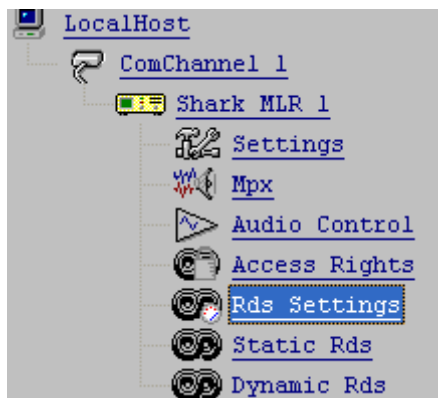
In the version RDS-only you may magnify the output level by 6, 12 or 18 dB (extra-amplification) in addition to the regular level controlled by the RDS LEVEL menu

27.1 BLOCK DIAGRAM – RDS / RBDS VERSION ONLY

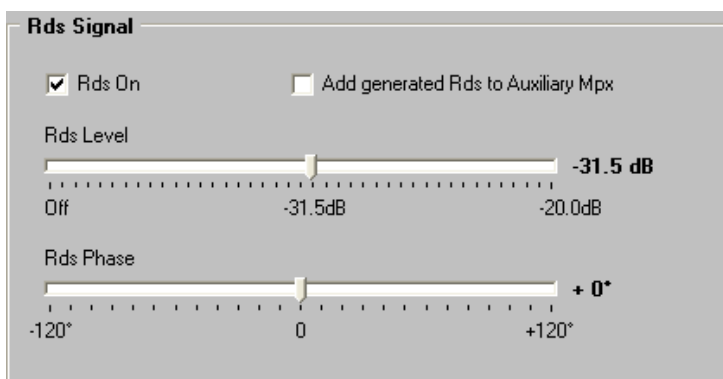


* it is the **RDS AMPLIFIER control**, which adds an extra-amplification to the RDS output by 6, 12 or 18 dB. The related control is available on the Front Panel only, **RDS MODULE SETUP** page. This extra-amplification helps in connecting the Tiger Shark to audio processors with input level for external RDS/SCA sources set at – 20 dB.

27.2 GENERAL RDS/RBDS ENABLING



Open 'RDS SETTINGS' windows from the Main three:



In the relevant panel, check '**Rds On**' option to enable RDS generation.

Tick the "**Add generated Rds to Auxiliary Mpx**" option to enable the RDS generation on the Tiger Shark while an external Stereo Composite MPX signal is routed to the output.

27.3 RDS PHASE AND LEVEL ADJUSTEMENT

The RDS Level cursor regulates the RDS generation level between – 43,9 and – 20 dB, where 0 dBm corresponds to 75 KHz deviation.

RDS modulator is turned off in the Off position.

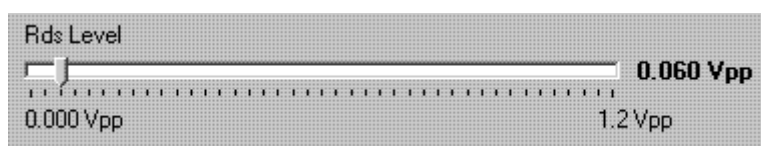
For the TIGER-SHARK – RDS version only, is available an RDS AMPLIFIER control, which adds an extra-amplification to the RDS output by 6, 12 o 18 dB.

The related control is available on the Front Panel only, RDS MODULE SETUP page. This extra-amplification helps in connecting the Tiger Shark to audio processors with input level for external RDS/SCA sources set at – 20 dB

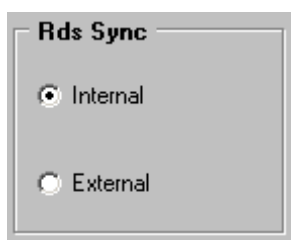
the following table lists the relationship between signal level and deviation.
Default value is -31.5dB, which corresponds to a D=2.0 KHz deviation.

-37.5 dB	D=1.0 KHz
-31.5 dB	D=2.0 KHz
-28.0 dB	D=3.0 KHz
-25.5 dB	D=4.0 KHz
-23.5 dB	D=5.0 KHz
-21.9 dB	D=6.0 KHz

For the TIGER-SHARK – RDS version only, the RDS level is expressed in mVpp units, as the level of the signal it will be mixed into is unknown. Default level is 60 mVpp (i.e. 2 KHz deviation, where 0 dBm = 2.2 Vpp).



27.4 RDS SYNC SOURCE (RDS VERSION ONLY)



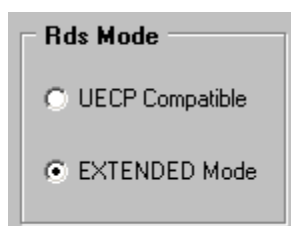
The RDS Sync Source selection is available for RDS – only versions.

In the External mode, the RDS carrier locks to an external ref source. The *Sync In* connector on the rear panel allows synchronization of RDS signal to an external 19 KHz TTL reference signal (5 Vpp). Correct synchronization to the external reference signal will cause LED 1 on the front panel to light. Synchronization to an external MPX signal reference is achievable from AUX1 and AUX-2 connectors, too, depending on J3 jumper. TTL suitable levels: '0' state < 0.5 V; '1' state > 2 V

See first part of this manual.

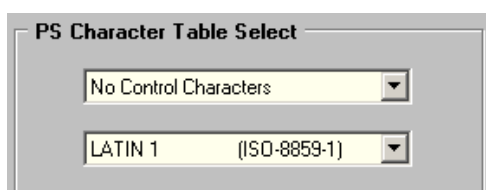
Even if set on 'External Sync', the Tiger Shark switches automatically on the internal oscillator in the event of lack or poor quality of the external ref source.

27.5 UECP OR NOT-UECP PROGRAMMING MODE



The Extended / not UECP mode carries a full-set of 'customized' features / controls which represent a valuable 'benefit' of the Tiger Shark. In the following pages one describes the 'extended' mode, as it contains the UECP-compliant mode, too.

27.6 CHARACTER TABLES (FOR RT, PS, PTYN SERVICES)



The Tiger Shark allows the user to select (with ref to CENELEC Annex E.1,E.2,E.3) the character table used in all 'textual' services, such as PS, RT, PTYN..

It also allows to add control characters, according to EBU and ISO normative.

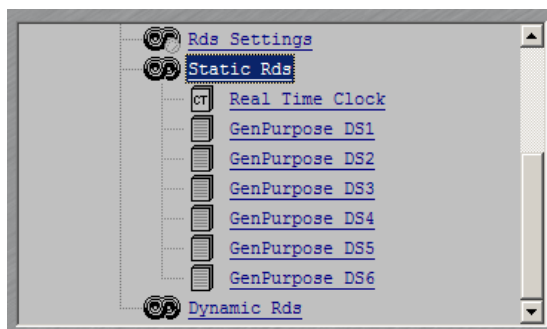
Available character tables are the following:

ISO 8859-1 (Latin 1)	ISO 8859-7 (Greek)
ISO 8859-2 (Latin 2)	ISO 8859-9 (Turkish)
ISO 8859-5 (Cyrillic)	ISO 8859-10 (Nordic Languages)

PAY ATTENTION TO THE CHARACTER SET IN USE. SOME LOW-PRICED RECEIVERS COULD NOT DISPLAY IN A CORRECT WAY ALL CHARACTER SETS.

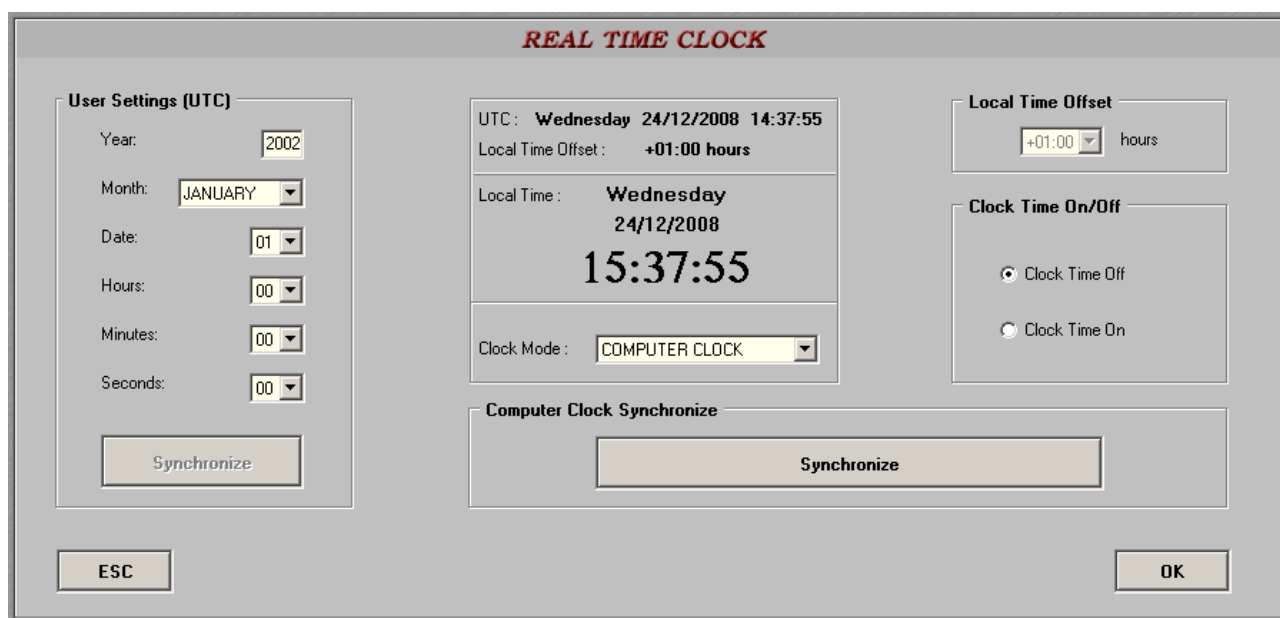
28 THE 'STATIC' RDS / RBDS

Double click the 'Static RDS' icon:



28.1 SYNCHRONIZE INTERNAL CLOCK AND ENABLE 'CT' SERVICE

Tiger Shark features an internal clock and calendar, that are used as reference either for PS, RT e PTY/PIN service scheduling, or for CT (Clock Time) service.



Real Time Clock panel allows the user to adjust the Target current time and date. If enabled (see CT On/Off button), this RDS feature can allow every receiver to automatically set its internal clock. Current time and date of Yr Pc is permanently shown at the center of the Panel. You can select two different time references for the Tiger Shark: the PC clock or an User-defined time. Selection is done through the dialog Box below the clock display:

COMPUTER CLOCK synchronizes Tiger Shark internal clock to actual Pc clock

USER SETTINGS allows the user to set a specific time and date through the User Settings mask at the left of the panel (see picture below). **NOTE:** in application of the relevant CCIR Recommendations, broadcast time and date codes should use Coordinated Universal Time (UTC) and Modified Julian Day (MJD). The listener, however, will not use this information directly and the conversion to local time time and date will be made in the receiver's circuitry.

A coded local time-difference, expressed in multiples of half-hours can be appended to the User time and date codes (see **Local Time Offset** options)

Click '**Synchronize**' to update Target time to the selected time reference. Make sure of the current Pc time prior to upgrade the Tiger Shark' clock.

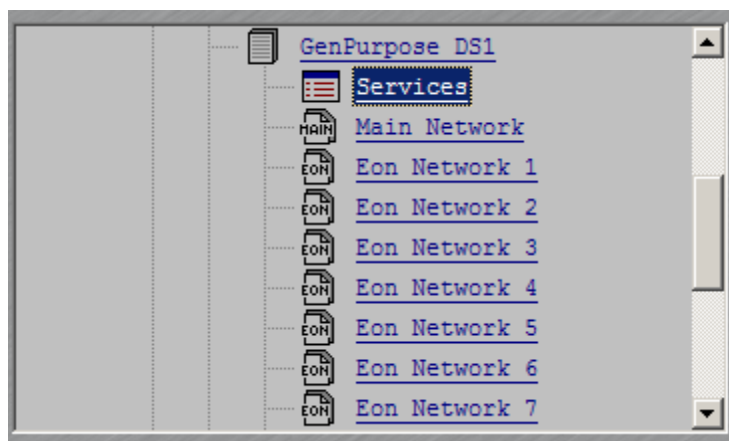
CT information is carried in the 4A Group. That Group is automatically managed by the Tiger Shark and is not user-enabled.

For more information about Time Sync in Tiger Shark see Appendix A chapter 8.5

29 DATASET 1 CONFIGURATION

29.1 INTRODUCTION

General Purpose **DataSet 1** menu comprises all the settings related to the Main network (which is broadcasting the DataSet) and to up to 10 EON (Enhanced Other Networks). It is available also another page (**Services**) for enabling/configuration of RDS services supported in the DataSet



29.2 RDS GROUP CONFIGURATION ('services' PANEL)

As in UECP protocol, *Service* panel allows you to enable single RDS services/features (f.i. PIN, RT, etc) and to compose the Group Sequence carried by the RDS signal.

GROUP SELECTION															PSN LIST	
Groups 0A 1A 2A 3A 5A 6A 7A 8A 9A 10A 11A 12A 13A 14A 0B 1B 2B 3B 4B 5B 6B 7B 8B 9B 10B 11B 12B 13B 14B 15B																
Group Sequence ◀ 0A 0B 1A 2A 2B 5A ▶																
Group 1A Slow Labelling Codes 0 1 2 3 4 5 6 7																
SLC Sequence 3																
Group 14A Variant Codes 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14																
Group 14A Variant Sequence 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14																
<div>ESC</div>															<div>OK</div>	

PSN List	PSN Enable
Main -> PSN 1	<input checked="" type="checkbox"/> Enable
Eon 1 -> PSN 2	<input checked="" type="checkbox"/> Enable
Eon 2 -> PSN 3	<input type="checkbox"/> Enable
Eon 3 -> PSN 4	<input type="checkbox"/> Enable
Eon 4 -> PSN 5	<input type="checkbox"/> Enable
Eon 5 -> PSN 6	<input type="checkbox"/> Enable
Eon 6 -> PSN 7	<input type="checkbox"/> Enable
Eon 7 -> PSN 8	<input type="checkbox"/> Enable
Eon 8 -> PSN 9	<input type="checkbox"/> Enable
Eon 9 -> PSN 10	<input type="checkbox"/> Enable
Eon10 -> PSN 11	<input type="checkbox"/> Enable

Tiger Tiger Shark accepts all the listed groups and reaches a maximum of 64 elements. Only group 4A (automatically generated) and 15A (not supported) are excluded. This feature matches with ODA management that allows to use any group for bridging the information.

When any group is specified, the Tiger Shark generates the **0A group** as default, which carries all the RDS **basic services** (PS, DI, M/S, TP, TA, PTY, AF). The 4A group (which carries clock information) is automatically managed by the Tiger Shark and it is not user-settable.

In the event You would like to broadcast additional services to those included in the 0A Group, You will need to broadcast a Group sequence. That sequence may be generated manually with Drag And Drop catching the corresponding number group in "Groups" and dragging the number in "Group Sequence"

29.3 EON / PSN SERVICES IN THE DATASET 1

	PSN List	PSN Enable
Main ->	PSN 1	
Eon 1 ->	PSN 2	<input checked="" type="checkbox"/> Enable
Eon 2 ->	PSN 3	<input type="checkbox"/> Enable
Eon 3 ->	PSN 4	<input type="checkbox"/> Enable
Eon 4 ->	PSN 5	<input type="checkbox"/> Enable
Eon 5 ->	PSN 6	<input type="checkbox"/> Enable
Eon 6 ->	PSN 7	<input type="checkbox"/> Enable
Eon 7 ->	PSN 8	<input type="checkbox"/> Enable
Eon 8 ->	PSN 9	<input type="checkbox"/> Enable
Eon 9 ->	PSN 10	<input type="checkbox"/> Enable
Eon10 ->	PSN 11	<input type="checkbox"/> Enable

The PSN (Program Service Number) List represents the reference List for all UECP index.

It allows to associate the various PSN (i.e. RDS configurations) to Main networks and to EON networks, so that a same UECP command (for example the TA) can be brought at the same time to each Coder no matter of the network it belongs, resulting in the TA activation on the Main network and the EON-TA activation on the linked network.

To change the PSN assignment in the PSN List You just have to click the chosen PSN and drag it on the desired position. After that, enable each individual assignment by clicking on Enable box.

For example, to assign the PSN 5 to the Eon 2 (instead of the default PSN 3), click PSN5 and drag it in the current position of PSN 3. Then enable the Eon2.

NOTE: PSN List modification can be done only on Dataset unactive.

EXAMPLE

If You have 3 RDS coders broadcasting 3 programs (Radio 1, Radio 2 and Radio3) and an unique TA - UECP command brought at the same time to each coder, PSN Lists on the 3 coders will be the following:

RADIO 1

	PSN List	PSN Enable
Main ->	PSN 1	
Eon 1 ->	PSN 2	<input checked="" type="checkbox"/> Enable
Eon 2 ->	PSN 3	<input checked="" type="checkbox"/> Enable
Eon 3 ->	PSN 4	<input type="checkbox"/> Enable
Eon 4 ->	PSN 5	<input type="checkbox"/> Enable
Eon 5 ->	PSN 6	<input type="checkbox"/> Enable
Eon 6 ->	PSN 7	<input type="checkbox"/> Enable
Eon 7 ->	PSN 8	<input type="checkbox"/> Enable
Eon 8 ->	PSN 9	<input type="checkbox"/> Enable
Eon 9 ->	PSN 10	<input type="checkbox"/> Enable
Eon10 ->	PSN 11	<input type="checkbox"/> Enable

RADIO 2

	PSN List	PSN Enable
Main ->	PSN 2	
Eon 1 ->	PSN 1	<input checked="" type="checkbox"/> Enable
Eon 2 ->	PSN 3	<input checked="" type="checkbox"/> Enable
Eon 3 ->	PSN 4	<input type="checkbox"/> Enable
Eon 4 ->	PSN 5	<input type="checkbox"/> Enable
Eon 5 ->	PSN 6	<input type="checkbox"/> Enable
Eon 6 ->	PSN 7	<input type="checkbox"/> Enable
Eon 7 ->	PSN 8	<input type="checkbox"/> Enable
Eon 8 ->	PSN 9	<input type="checkbox"/> Enable
Eon 9 ->	PSN 10	<input type="checkbox"/> Enable
Eon10 ->	PSN 11	<input type="checkbox"/> Enable

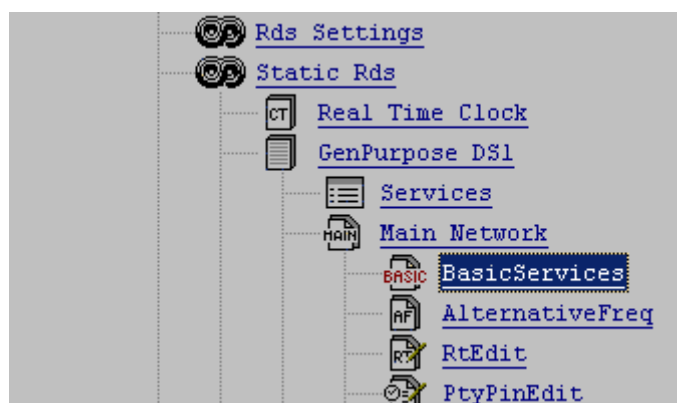
RADIO 3

	PSN List	PSN Enable
Main ->	PSN 3	
Eon 1 ->	PSN 1	<input checked="" type="checkbox"/> Enable
Eon 2 ->	PSN 2	<input checked="" type="checkbox"/> Enable
Eon 3 ->	PSN 4	<input type="checkbox"/> Enable
Eon 4 ->	PSN 5	<input type="checkbox"/> Enable
Eon 5 ->	PSN 6	<input type="checkbox"/> Enable
Eon 6 ->	PSN 7	<input type="checkbox"/> Enable
Eon 7 ->	PSN 8	<input type="checkbox"/> Enable
Eon 8 ->	PSN 9	<input type="checkbox"/> Enable
Eon 9 ->	PSN 10	<input type="checkbox"/> Enable
Eon10 ->	PSN 11	<input type="checkbox"/> Enable

EON Fast Switch option (group 14B) shall be selected when a large number of groups (either Main or EON) is broadcast, in order to make more timely a change in the status of the TA flag of a cross-referenced programme service.

Some early RDS EON consumer receivers may need up to four correct type 14B groups for reliable functioning. Therefore, if manual group mode has been selected, it is recommended to broadcast as many as possible of up to 8 type 14B groups, in order to ensure the detection of the TA switching under bad reception conditions.

29.4 THE PI CODE (PROGRAM IDENTIFIER)



Main Network Panel contains all the settings related to the RDS signal that is currently being transmitted.

A double click on Main Network icon will disclose a sub-tree providing the following panels: Basic Services, Alternative Frequencies, Rt (Radio Text) Edit, PinPtyEdit, PsnEdit, Scheduler.

Access the BasicServices page

29.4.1 THE 'PROGRAM IDENTIFIER' CODE IN THE RDS MODE

Country Group		Coverage Area		Ref	Code
PI:	IT, JO, SK	LOCAL		000	5000
Linkage Informations					
LA:	OFF	EG:	OFF	ILS:	OFF
Music / Speech		Decoder Identification			
M/S:	MUSIC	DI: STEREO, STATIC PTY			
Traffic Programme			Traffic Announcement		
TP:	DISABLED	TA:		DISABLED	

PI PROGRAMME IDENTIFICATION contains four hexadecimal numbers (see 'Code' box): the first one assigns the broadcast country and it is automatically provided from the Remoter software application by clicking the country acronyms (see Country Group). The second hexadecimal number assigns the coverage area profile (i.e. national , local etc.) Click on the most suitable item inside the Coverage Area window and the application provides the hexadecimal corresponding number. The 'Ref' window contains a number from 1 to 255 (normally assigned from the law authorities to the broadcaster). **If the entire hexadecimal code is already known, enter it into the 'Code' box.**

29.4.2 THE 'PROGRAM IDENTIFIER' CODE IN THE RBDS MODE

Country Group		Coverage Area		Ref	Code
PI:	Not Available	Not Available		NA	5000
Linkage Informations					
LA:	OFF	EG:	OFF	ILS:	OFF
Music / Speech		Decoder Identification			
M/S:	MUSIC	DI: STEREO, STATIC PTY			
Traffic Programme			Traffic Announcement		
TP:	DISABLED	TA:		DISABLED	

PI PROGRAMME IDENTIFICATION contains four hexadecimal numbers (see 'Code' box). **The hexadecimal code must be typed into the 'Code' field: it will be broadcast 'as is'.**

29.5 THE DI (DECODER IDENTIFICATION)

DI (DECODER IDENTIFICATION): this pull-down menu allows you to identify the kind of modulation (Stereo, Mono, etc). Stereo modulation is assigned to STEREO, STATIC PTY, while mono is MONO, STATIC PTY. Click OK/Send to confirm or Esc to quit without saving.

29.6 'LINKAGE' INFORMATION (LA, EG, ILS, LSN)

They are accessible in the 'Basic Services' panel.

Linkage Informations

LA: EG: ILS: LSN:

Linkage information provides the means by which several programme services, each characterised by its own PI code, may be treated by a receiver as a single service during times a common programme is carried.

During such times each programme service retains its unique identity, i.e. the programme service must keep its designated PI code and its AF (Alternative Frequency) list(s), but may change programme related features such as PS, PTY, RT, TP and TA to reflect the common programme;

With LA=1, a service carrying codes TP=1 or TP=0/TA=1 must not be linked to another service carrying the codes TP=0/TA=0.

Linkage information is conveyed in the following four data elements:

- 1) LA - Linkage Actuator (1 bit)
- 2) EG - Extended Generic indicator (1 bit)
- 3) ILS - International Linkage Set indicator (1 bit)
- 4) LSN - Linkage Set Number (12 bits)

29.7 TP, TA, MS CONFIGURATION & THEIR REMOTE CONTROL

Open the 'Basic Services' page in the Main Network (see also previous paragraph).

Traffic Programme

TP:

Traffic Announcement

TA:

TP - Traffic Programme is a flag to indicate that the tuned programme carries traffic announcements. The TP flag must only be set on programmes which dynamically switch on the TA identification during traffic announcements. It can be set as Disabled or Enabled.

TA - Traffic announcement identification is an on/off switching signal to indicate when a traffic announcement is on air. To enable it, see next lines.

TA and M/S 'status may be:

- **Fixed** (enabled / disabled)
- Associated to relevant **UECP** command
- Associated to the status of one of 5 inputs on the *Opto Input* port or to impulsive commands (100 ms duration) applied to inputs 4 and 5.

Traffic Announcement

TA:

DISABLED

ENABLED

POSITIVE INPUT 1

POSITIVE INPUT 2

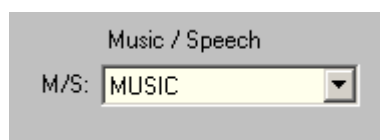
POSITIVE INPUT 3

POSITIVE INPUT 4

POSITIVE INPUT 5

NEGATIVE INPUT 1

M/S - Music/Speech is a two-state signal to provide information on whether music or speech is being broadcast. The signal would permit receivers to be equipped with two separate volume controls, one for music and one for speech, so that the listener could adjust the balance between them to suit his individual listening habits



Refer to Appendix A of this manual for OPTO INPUT interface pin-out.

TA, TP and MS services are included in the Basic Services packet group

29.8 SLOW LABELING CODES

<i>SLOW LABELING CODES</i>		
SLC Data (12 bits)		
SLC 0	000	Extended Country Code
SLC 1	000	TMC Identification
SLC 2	000	unsupported
SLC 3	000	Language Codes
SLC 4	000	not assigned
SLC 5	000	not assigned
SLC 6	000	For use by broadcasters
SLC 7	000	EWS Channel ID

Slow Labeling Codes, as broadcast on 1A Group, are typed in Slow Labeling Codes in the Basic Services page.

29.9 ALTERNATIVE FREQUENCIES (AF)

ALTERNATIVE FREQUENCIES

FM FREQUENCIES (MHz)												AF 1	AF 2	AF 3	AF 4	AF 5	AF 6	AF 7	AF 8
89.1	91.1	93.1	95.1	97.1	99.1	101.1	103.1	105.1	107.1			107.9	99.6	95.5					
89.2	91.2	93.2	95.2	97.2	99.2	101.2	103.2	105.2	107.2			107.6	99.6						
89.3	91.3	93.3	95.3	97.3	99.3	101.3	103.3	105.3	107.3			107.9	100.2						
89.4	91.4	93.4	95.4	97.4	99.4	101.4	103.4	105.4	107.4			96.2	99.6						
89.5	91.5	93.5	95.5	97.5	99.5	101.5	103.5	105.5	107.5			107.9	104.4						
87.6	89.6	91.6	93.6	95.6	97.6	99.6	101.6	103.6	105.6	107.6		90.6	99.6						
87.7	89.7	91.7	93.7	95.7	97.7	99.7	101.7	103.7	105.7	107.7		107.9	106.7						
87.8	89.8	91.8	93.8	95.8	97.8	99.8	101.8	103.8	105.8	107.8		96.3	99.6						
87.9	89.9	91.9	93.9	95.9	97.9	99.9	101.9	103.9	105.9	107.9		107.9	106.8						
88.0	90.0	92.0	94.0	96.0	98.0	100.0	102.0	104.0	106.0			95.1	99.6						
88.1	90.1	92.1	94.1	96.1	98.1	100.1	102.1	104.1	106.1			107.9	106.5						
88.2	90.2	92.2	94.2	96.2	98.2	100.2	102.2	104.2	106.2				99.6						
88.3	90.3	92.3	94.3	96.3	98.3	100.3	102.3	104.3	106.3				100.2						
88.4	90.4	92.4	94.4	96.4	98.4	100.4	102.4	104.4	106.4				98.2						
88.5	90.5	92.5	94.5	96.5	98.5	100.5	102.5	104.5	106.5				99.6						
88.6	90.6	92.6	94.6	96.6	98.6	100.6	102.6	104.6	106.6										
88.7	90.7	92.7	94.7	96.7	98.7	100.7	102.7	104.7	106.7										
88.8	90.8	92.8	94.8	96.8	98.8	100.8	102.8	104.8	106.8										
88.9	90.9	92.9	94.9	96.9	98.9	100.9	102.9	104.9	106.9										
89.0	91.0	93.0	95.0	97.0	99.0	101.0	103.0	105.0	107.0										

AF Lists
☒ AF 1-8
☐ AF 9-16
☐ AF 17-24
☐ AF 25-32
☐ AF 33-40
☐ AF 41-48
☐ AF 49-56
☐ AF 57-64

ESC

U	U	U	U	U	U	U	U
B	B	B	B	B	B	B	B
R	R	R	R	R	R	R	R

Send

The list(s) of **alternative frequencies** give information on the various transmitters broadcasting the same programme in the same or adjacent reception areas. This facility is particularly useful in the case of car and portable radios.

NOTE: Overall 500 alternative frequencies max can be entered for each DataSet.

The alternative frequencies (AF) list can be transmitted following two methods: A Method and B Method.

In both cases, lists should only contain frequencies related to the closest transmitters (i.e. frequencies with overlapping between coverage areas).

NOTE receivers are able to get which Method (A or B) is used from their data organization (coupled frequencies or single frequencies). There is any direct 'identifier' for that.

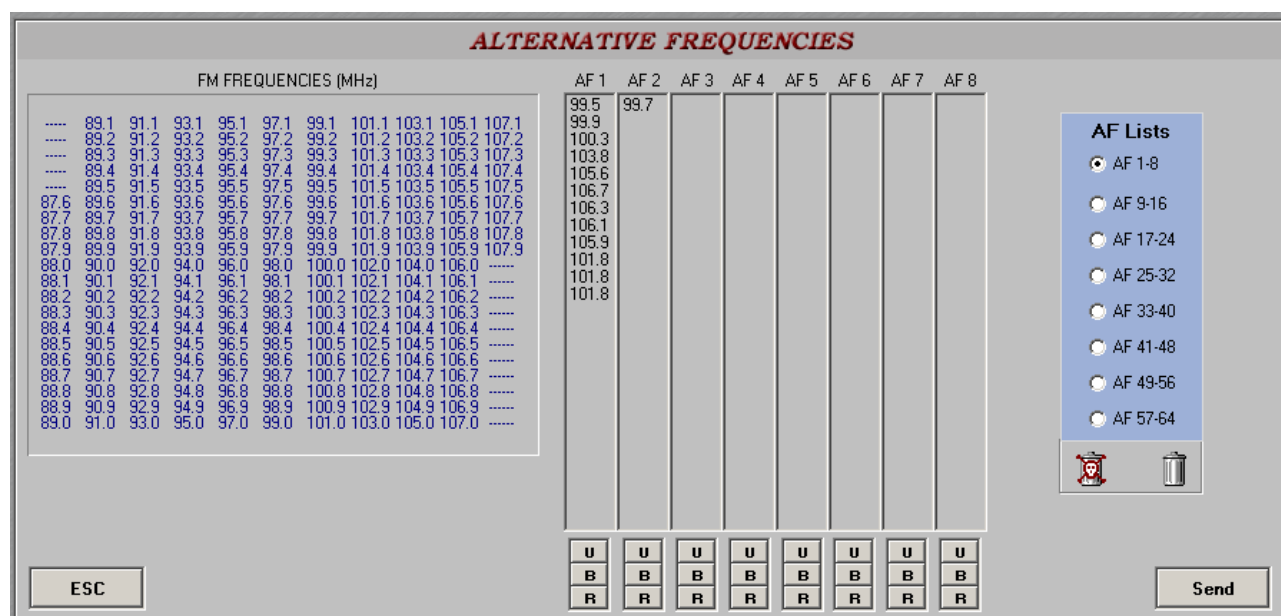
The Tiger Shark offers to the user the max freedom in using Method A or Method B in the list composition and, in particular, whether freq pairs are listed in descending or ascending order within the B Method.

Receiver's behaviour could differ from one model to the other. The examples shown in these pages are for information purpose only and to present Tiger Shark potentialities in the AF programming. Refer to Cenelec normative for a complete treatment on AF programming.

29.10 HOW TO COMPOSE AF LISTS

First loading method (Drag & Drop) Select the AF from the available frequencies in the left window by clicking left it and drag & drop it into the AF list. Release the mouse left button to 'drop' the frequency into the desired AF list.

Second loading method (preselected AF list) Highlight the AF list to be loaded by clicking on it. The selected column will turn red with a bright tone. At this point, double click desired items on the general list: they will automatically appear into the highlighted AF list.



- "U" button Arrange AFs
- "B" create Method B AF list
- "R" restore AF previous order



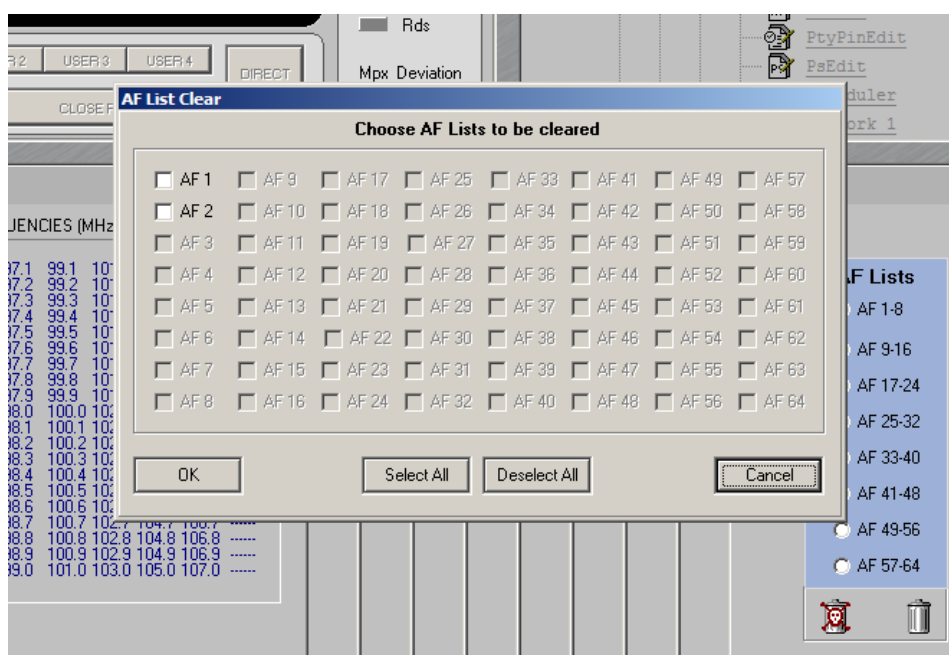
Clicking RIGHT You can remove ALL frequencies from the highlighted list or from ALL the lists.

Lists containing at least one item (i.e. not empty) are shown in blu color.

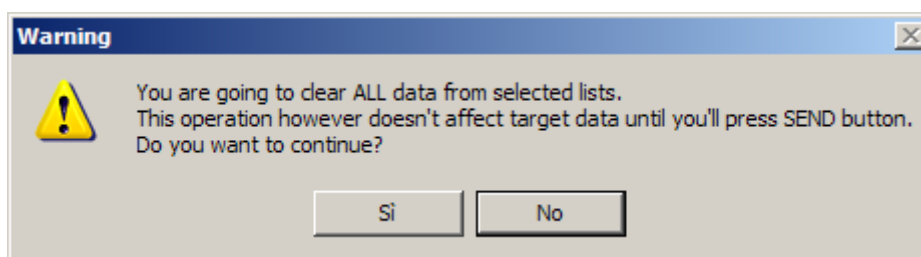
- To remove a frequency from the list, click LEFT and then drag it onto the 'trash' icon (alternatively, click 'Canc' button). By clicking with the Right button of the mouse on the skeltor trashed it's possible to delete only a list of AF Frequency



Then it's possible top select the AF List to delete and pressing OK delete it.



A Warning message is showed to remind that you are deleting ONLY in the DataBase Manager, so if you need to send information right now you have to Press SEND.



29.11 AF METHODS A AND B

There are two ways to transmit lists of alternative frequencies: Method A and Method B.

In both cases the lists should include only those frequencies for the nearest transmitters and repeaters (with overlapping coverage areas).

Generally speaking, Method A is used when the list contains no more than 25 frequencies, and Method B when the list is longer (for a maximum of 24 lists).

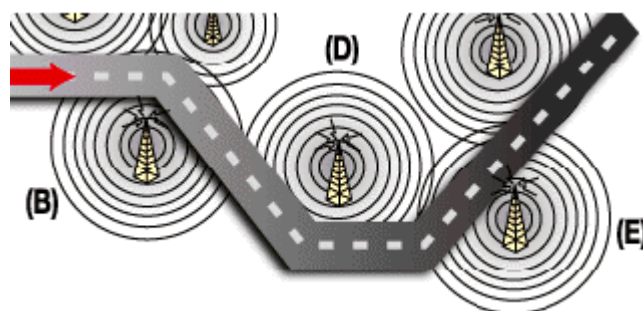
Method B is recommended when splitting areas or when different programs are broadcast.

NOTE: use of encoding method A or B is not explicitly assigned by a dedicated signal to the receiver, as the latter is capable of identifying which method is used by analyzing the transmitted data structure (whether or not they are organized in pairs).

METHOD A

Compile the AF1 list assigning the tuning frequency (i.e. the frequency carrying the list of alternative frequencies) in the first position, and then continue in strictly increasing order with the alternative frequencies transmitting exactly the same program.

We recommend recording the alternative frequencies (those of adjacent transmitters and repeaters with overlapping coverage areas) on each transmitter, being careful that the first position indicates the frequency carrying the list of alternative frequencies.



For example, in the situation shown in the figure three transmitters (B, D, E) intersect only in two coverage areas: between B and D, and between D and E. The following lists should be loaded in each transmitter:

Tx B lists (tuning frequency: f Tx B)	AF1	AF2	Note that the frequency of transmitter C is not included in the list, since the latter's coverage area does not overlap with that of transmitter A
	f Tx B f Tx D	f Tx D f Tx B	
Tx D lists (tuning frequency: f Tx D)	AF1	AF2	Coverage area D partially overlaps that of both transmitters B and E, and thus it is recommended to load the lists for both adjacent transmitters. Be careful to list all frequencies above the tuning frequency in ascending order.
	f Tx D f Tx B f Tx E	f Tx B f Tx D	
Tx E lists (tuning frequency: f Tx E)	AF1	AF2	Note that the frequency of transmitter B has not been included in the list, since its coverage area does not overlap with that of transmitter E.
	f Tx E f Tx D	f Tx D f Tx E	

METHOD B

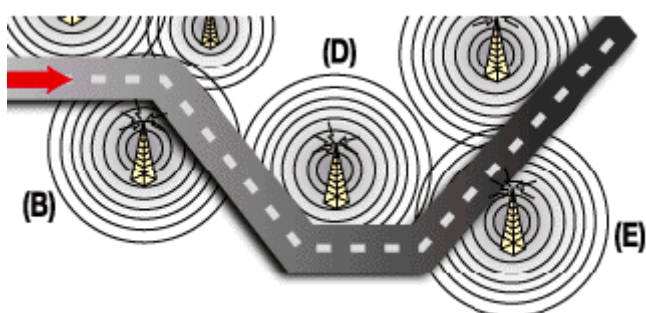
As mentioned earlier, Method B is used with high numbers of alternative frequencies and/or when the transmitter also has frequencies that broadcast different radio program at various times of day (splitting, local programming, etc.).

In the latter instance, the mobile receiver should check whether the AF is broadcasting the same content before selecting another frequency.

Each list begins with the *tuning* frequency (for which the list is valid) and then contains up to 12 **pairs of frequencies** in sequence, each containing the *tuning* frequency and an alternate. If there are more than 12 possible alternative frequencies, the list continues in other lists in the same manner.

The order of the frequencies in each pair follow the rules below:

- If the order is increasing, the alternative frequency broadcasts the same programming as the *tuning* frequency.
- If the order is decreasing, the two frequencies have different programming.



Returning to the example of transmitters B, D and E in the previous paragraph (in which the coverage areas of D and E do not overlap), two more lists will be assigned to transmitter B, sorted according to the above criteria to take into account any different programming by some of the AFs.

Tx B (tuning frequency: f Tx B)	AF1	AF2	Notice that the tuning frequency f Tx B is repeated twice in list 1: in the first position, then paired with f Tx D. Tx B broadcasts the same program as D if $f_{Tx B} < f_{Tx D}$, and different programs if $f_{Tx B} > f_{Tx D}$.
	f Tx B	f Tx D	
	f Tx B	f Tx D	
	f Tx D	f Tx B	

The AF lists for the other transmitters are compiled according to the same criteria, alternating the frequency pairs. NOTE: if the same tuning frequency is used by more than one transmitter within the same network, the corresponding AF lists must not be consecutive (for instance AF 1 and AF 2). Lists for different tuning frequencies must be placed between them.

29.12 RADIOTEXT PANEL

Once You have selected the Radio Text panel, You can be enter up to 16 Radio Text messages, each one having up to 64 characters (spaces included). This refers to text transmissions, primarily addressed to consumer home receivers, which would be equipped with suitable display facilities. This feature can be used to display cyclic messages, too.

RT No.	RADIOTEXT FIELD	Iterations	A/B Flag
Main RT	RAI -RADIOTELEVISIONE ITALIANA-	01	ON
RT 1	CENTRO RADIO SAXA RUBRA	00	OFF
RT 2	-ROMA-	00	OFF
RT 3		00	OFF
RT 4		00	OFF
RT 5		00	OFF
RT 6		00	OFF
RT 7		00	OFF
RT 8		00	OFF
RT 9		00	OFF
RT 10		00	OFF



ITEM #	RADIOTEXT	Iterations	A/B Flag
RT 3		00	OFF

NOTE: only the MAIN RT field can be programmed accordingly to the UECP protocol. The other fields (from RT01 to RT15) are related only to the UECP Extended (custom) RDS programming mode

Rds Mode

- ☐ UECP Compatible
☒ EXTENDED Mode

To enter RadioTexts:

- select a field (MAIN RT, RT01, RT02, etc) clicking on the 'yellow' zone: the selected field will be displayed at the bottom of the window
- select and delete the text displayed by default (f.i. RADIOTEXT 04)
- type the new Radio Text message (64 char max) into the field at the bottom
- click the 'Update' button  to update the message or click  to discard it.

NOTE: Main Radio Text message (also indicated as RT 00) is broadcast by default. The SCHEDULER panel schedules many RT sequences.

Please, remind to enable RT group in the Main RDS SERVICE panel.

Group Sequence
◀ 0A 0B 1A 2A 2B 5A 3B

The group name for RT is 2A

29.13 PIN – PTY SERVICES

PIN / PTY EDITOR allows you to set up to 32 different Pin / Pty / Ptn items.

	DAY	HOUR	MIN	PROGRAM TYPE	PROGRAM TYPE NAME
Main Pty/Pin	00	00	00	NO PROGRAMME TYPE	
PTY/Pin 1	00	00	00	NO PROGRAMME TYPE	
PTY/Pin 2	00	00	00	NO PROGRAMME TYPE	
PTY/Pin 3	00	00	00	NO PROGRAMME TYPE	
PTY/Pin 4	00	00	00	NO PROGRAMME TYPE	
PTY/Pin 5	00	00	00	NO PROGRAMME TYPE	
PTY/Pin 6	00	00	00	NO PROGRAMME TYPE	
PTY/Pin 7	00	00	00	NO PROGRAMME TYPE	
PTY/Pin 8	00	00	00	NO PROGRAMME TYPE	
PTY/Pin 9	00	00	00	NO PROGRAMME TYPE	

PIN:

Day



Hour

Minute

PTY

PTYN

Main Pty/Pin
00
00
00
NO PROGRAMME TYPE

- PIN - Programme Item Number

The PIN code should enable receivers and recorders designed to make use of this feature to respond to the particular programme item(s) that the user has preselected. Use is made of the scheduled programme time, to which is added the day of the month in order to avoid ambiguity.

- PTY - Programme Type



This is an identification number to be transmitted with each programme item and which is intended to specify the current Programme Type within 31 possibilities. This code could be used for search tuning. The code will, moreover, enable suitable receivers and recorders to be pre-set to respond only to programme items of the desired type. The last number, i.e. 31, is reserved for an alarm identification which is intended to switch on the audio signal when a receiver is operated in a waiting reception mode.

- PTYN - Programme TYPe Name

The PTYN feature is used to further describe current PTY. PTYN permits the display of a more specific PTY description (max 8 characters) that the broadcaster can freely decide (eg PTY=4: Sport and PTYN: Football). The PTYN is not intended to change the default eight characters of PTY which will be used during search or wait modes, but only to show in detail the programme type once tuned to a programme. If the broadcaster is satisfied with a default PTY name, it is not necessary to use additional data capacity for PTYN. The Programme Type Name is not intended to be used for automatic PTY selection and must not be used for giving sequential information.

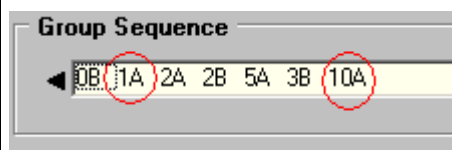
NOTE: the MAIN PTY only can be programmed accordingly to the UECP protocol. The other fields (from PTY/PIN 01 to PTY/PIN 31) are related to the **UECP Extended** (custom) RDS programming mode.

To enter PTY/PIN:

- select a field (MAIN PTY, PTY01, PTY02, etc) clicking on the 'yellow' zone: the selected raw will be displayed at the bottom of the window (f.i., the picture here above shows PTY 1 selection).
- Select PIN Date/Time (Day, Hour, Min) and PTY from the list. Type an additional PTYN (8 char max) into the field at the bottom.
- click the 'Update' button  to update the data or click  to discard it.

NOTE: Main PTY/PIN (also indicated as PTY 00) is broadcast by default. The SCHEDULER panel (see NEXT PAGES) allows You to schedule many PTY sequences.

Please, remind to enable PTY and PTYN groups in the Main RDS SERVICE panel The group number are for PTY 1A and for PTYN 10A

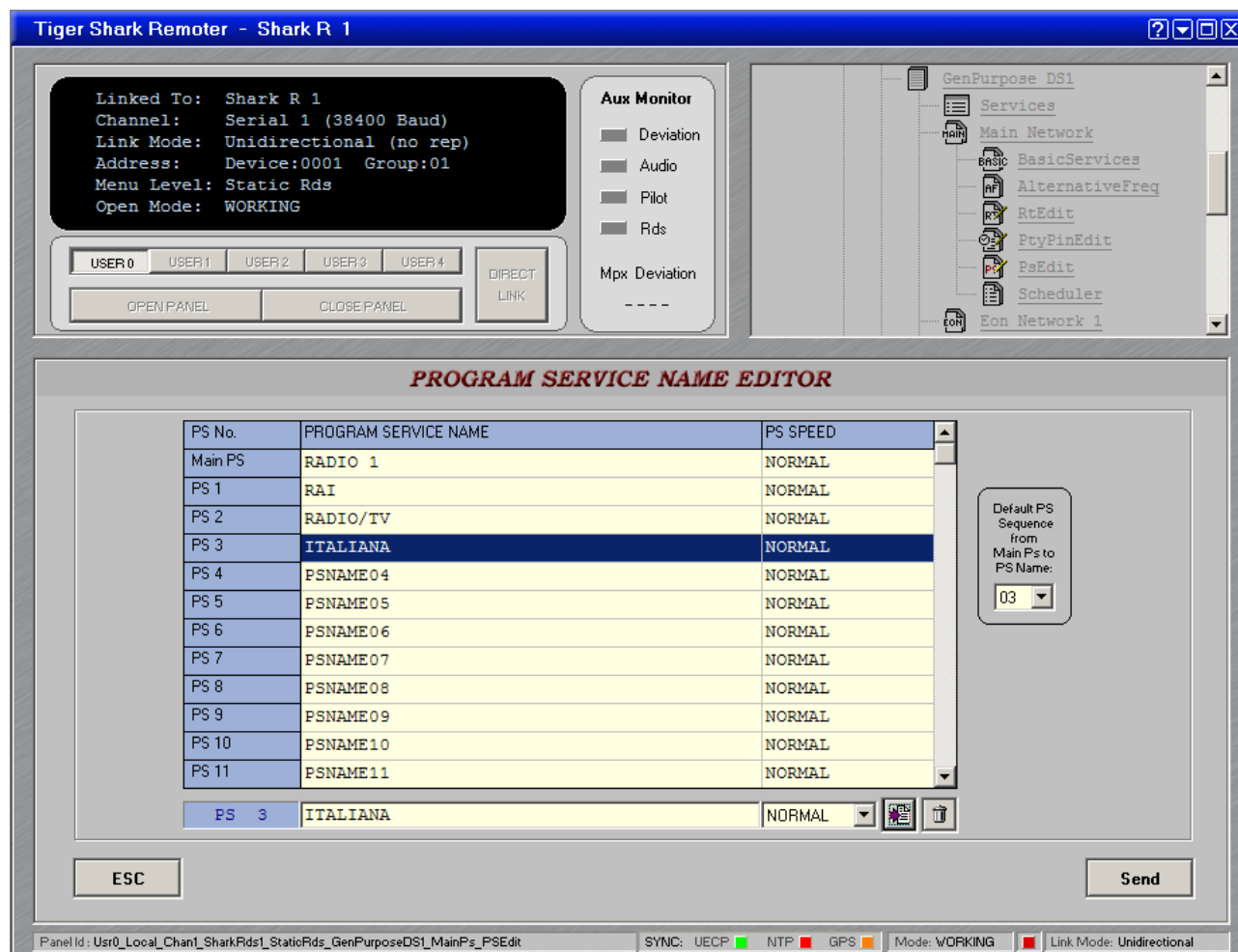


PTY CODE	PROGRAM TYPE
0	No program type o indef.
1	News
2	Current affairs
3	Information
4	Sport
5	Education
6	Drama
7	Culture
8	Science
9	Varied
10	Pop Music
11	Rock Music
12	M.O.R. Music
13	Light classical
14	Serious classical
15	Other Music
16	Weather

PTY CODE	PROGRAM TYPE
17	Finance
18	Children's programs
19	Social Affairs
20	Religion
21	Phone In
22	Travel
23	Leisure
24	Jazz Music
25	Country Music
26	National Music
27	Oldies Music
28	Folk Music
29	Documentary
30	Alarm Test
31	Alarm



29.14 PROGRAM SERVICE NAME (PSN)

PSN - Program Service Name is a text consisting of not more than eight alphanumeric characters which is displayed by RDS receivers in order to inform the listener what programme service is being broadcast by the station to which the receiver is tuned. An example for a PS name is "Radio 21". The Programme Service name is not intended to be used for automatic search tuning.



NOTE: MAIN PSN only can be programmed accordingly to the UECP protocol. The other fields (from PS1 to PS59) are related to the **UECP Extended** (custom) programming mode.

To enter PSNs:

- select a field (MAIN PSN, PSN1, PSN2, etc) clicking on the 'yellow' zone: the selected field will be displayed at the bottom of the window (f.i., the picture here above shows PSN 4 selection).
- select and remove the text displayed by default (f.i. PSNAME 03) from the field at the bottom
- type the new PS Name (8 char max)
- click the 'Update' button  to update the message or click  to discard it.

NOTE: Main PSN (also indicated as PS 00) is broadcast by default.
The SCHEDULER panel allows You to schedule many PS sequences.

29.15 VARIABLE PS - BASIC OPERATION

Here below are provided some basic tools for the management of variable PS. For an advanced PS scheduling / programming please refer to Scheduler panel (next paragraph).

29.15.1 PS SEQUENCES

UECP Extended mode of Tiger Shark allows You to easily create and broadcast sequences composed by up to 60 PS Names. For each PS, You can also set its 'display speed' (related to the time it will last on the receiver display).

To enter the single PSNs componing the sequence, please refer to the previous page.

A different 'display rate' can be set for each message. Available options are listed in the PSN SPEED pop-up menu (**slowest, slow, normal, fast and fastest**).

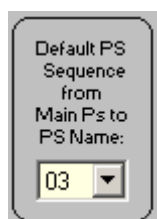


NOTE: the time needed for a receiver to properly receive and display a message is dependent upon the following:

- numbers of characters in the message
- repetition rate of data group / overall number of groups carried out by RDS signal
- reception conditions at the receiver
- software implementation of PS feature

Further to these conditions, it is not possible to set a precise time duration for each PSN (i.e. number of seconds). Any way, 'normal' rate factor corresponds to an average display time of around 3 seconds. Please remind that *fast* and *fastest* rate factors are advisable only whenever a large number of groups is carried out by RDS signal. See also 'Warning' note at the end of this Paragraph.

The '**Stopped**' option allows You to keep constantly displayed a specific PSN. This feature is very useful when many PS sequence are scheduled through the Scheduler panel (see next paragraph). Please make sure no stopped PSN are set in the middle of a PS sequence.



Default PS Sequence window allows to configure a PS sequence (or PS carousel) in a very easily and quickly way. Please note that this Sequence can not be scheduled (i.e., it can not be automatically changed during the day, the week, etc).

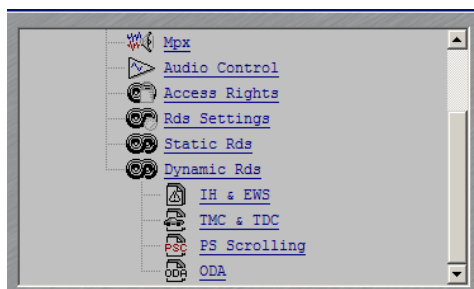
It is intended to be on-air whenever no PS Event are scheduled (i.e. it should be used to 'fill' possible lacks in Event overlapping

To create a default sequence, You have just to select the last item of it, as the first item is set by default (Main PSN).

PS No.	PROGRAM SERVICE NAME
Main PS	RADIO 1
PS 1	RAI
PS 2	RADIO/TV
PS 3	ITALIANA

F.i., accordingly to the settings as in the picture here closed the PS sequence broadcast at all time will be: RADIO 1 / RAI / RADIO/TV / ITALIANA

29.15.2 PS SCROLLING



The Dynamic Program Service Scrolling is a special feature that bring in PS Name a Scrolling message. For setup this message enter in the Dynamic Rds section and set the message in PS Scrolling Message. It's possible to set le Scrolling Repetition, the Number of Character per Step and the Scrolling Speed in the

Please, make sure PSN is enabled (Basic Tuning group) in the Main RDS SERVICE panel. The Group is 0A

DYNAMIC PROGRAM SERVICE SCROLLING

PS Scrolling Message

Scrolling Repetitions : 1 repetition
 Number of char per step : 01
 Scrolling Speed : Normal

i 1. - For proper operation of this facility a Default PS Event must be scheduled as always active in the Scheduler panel
 2. - The 'on-air' actual scrolling speed depends on the user's choice (Scrolling Speed menu) and on the rate of QA Group inside the broadcast group sequence. Please refer to the User's Manual for details;

Send On Air Now
Close

WARNING: if the PS is constantly changed (as in the PS Scrolling mode), it is possible that some receivers will display a mixture of old and new PS message on the same display. In some cases, no PS will be displayed at all. This may occurs as message byte group order is not univocally recommended by the CENELEC RDS standard and strictly depends on the coder/decoder physical implementation. Neither the RDS encoder nor the car receiver are faulty. In case of PS Scrolling selection, we therefore suggest to choose low display speeds.

Services panel provides **GENERAL ENABLING** of every RDS Service. Once You have configured PSN messages MAKE SURE the related Group (Basic Services) is 'checked' on the Services Panel and included in the outgoing RDS Group sequence.

29.16 THE SCHEDULER

EVENT SCHEDULER

Event #	Item Type	Item #	Ps End	Hour	Min	Day	Month	Year	Mo	Tu	We	Th	Fr	Sa	Su	Enabled
Event 1	PS	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 2	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO
Event 3	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO
Event 4	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO
Event 5	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO
Event 6	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO
Event 7	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO
Event 8	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO
Event 9	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO
Event 10	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO
Event 11	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO
Event 12	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO

Event 1 PS 00 -- ALL ALL ALL ALL ALL OFF OFF OFF OFF OFF OFF OFF YES

Program Service: "RADIO 1"

ESC Send

Scheduler enables you to organize RDS broadcast on a 'round the clock' daily, weekly, and monthly basis. You use Scheduler to make Tiger Shark broadcasting / changing specific RDS features (PS, PTY/PIN) at specific times and dates.

The changes to a schedule are immediately saved and implemented. Your scheduling work goes into effect (i.e. 'on air') in max 1 minute.

The basic unit of the Event Scheduler is the **event**, which is an RDS feature (PS, PTY/PIN) that can be configured to launch automatically at a specified time and date or to launch cyclically at a specified interval.

The Events have two properties that define how they work: operational properties and chronological properties. Operational properties determine what the Event does (i.e. the type of event) and Chronological properties determine when the Event **launches**.

Scheduler programming capabilities are very flexible, allowing you to set the duration of each event, from 1 minute to 365 days per year, in 1 minute increments. Up to 64 events can be stored in the Tiger Shark memory. Event Scheduler provides the **capability to configure four types of event (PS, PTY/PIN) to occur at any time**.

Some examples are listed below:

- You can schedule a new PSName to be on air at a aspecified interval (f.i. form 6:00 to 12:00).
- You can schedule a specific PTY to launch at 14:00 every morning

Tiger Shark will investigate every minute for a new scheduled event and will activate it. A new scheduled event may be therefore broadcast within 1 minute. Please note that Tiger Shark will scan scheduled events from the bottom to top of the Scheduler table. It means: **if two events are partially or fully overlapped in the time, Tiger Shark will execute the event with the highest index (see NEXT pages). YOU WILL NEED THE TIGER-SHARK CLOCK ALWAYS 'ON-TIME' TO GET THE MOST RELIABLE SCHEDULER OPERATION**

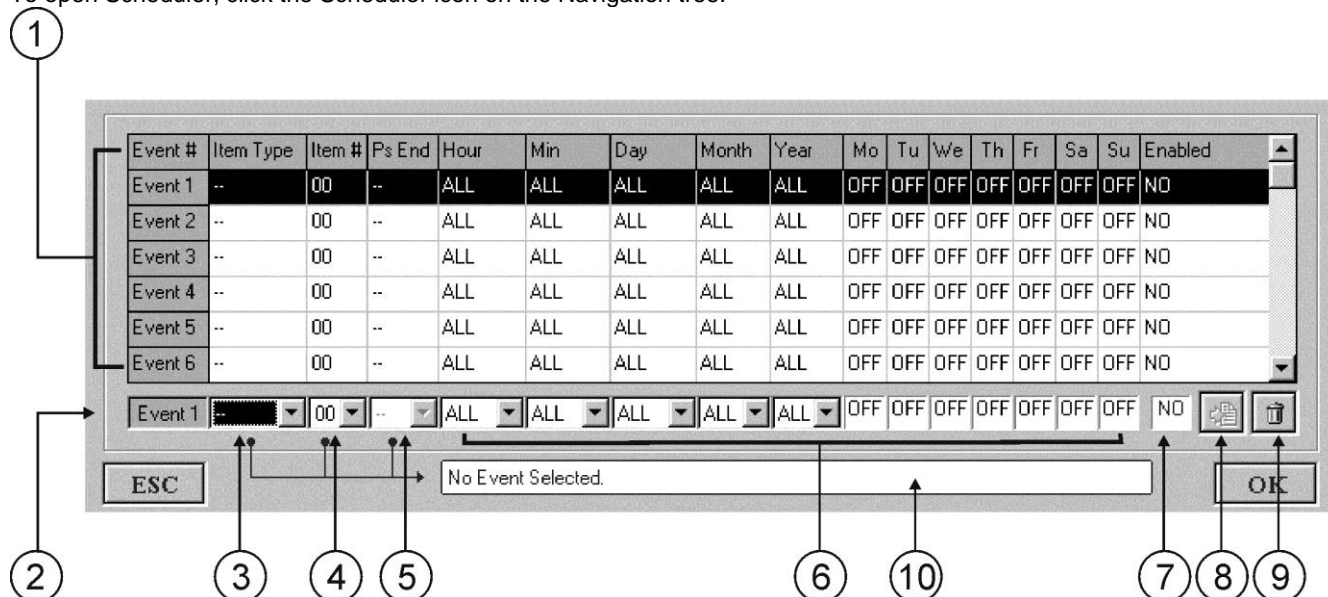
You can activate or deactivate any single event at any time using the *Enable* option provided for each event.

NOTE:

- Change between 12- and 24-hour format is not available
- A cross-referenced Preview Bar is provided: this is a quick way to find out which item You are scheduling

This section provides you with a general working knowledge of the Scheduler features and a step-by-step programming instructions. In particular, it describes how to insert the items (PS Names, etc) that you have already created into blank event slots (rows) in the Schedule Table.

To open Scheduler, click the Scheduler icon on the Navigation tree.



SCHEDULER OVERVIEW

- 1 **Event rows** Each Event row provides complete information about the event type, and scheduled day, month, date and year.
- 2 **Edit Bar** The Edit Bar allows you to set/edit properties of the highlighted event (event type, launch time and date, etc)
- 3 **Item Type** 2 different RDS features (PS, PTY/PIN) can be scheduled. Item Type menu allows You to assign a new event to one of these four features.
- 4 **Item #** It indicates the specific RT, PS, PTY item scheduled (f.i. PSN number 6)
- 5 **Ps End** In case the Event is a Ps Sequence, *Item #* field shows the first element of the sequence and *Ps End* field the last one
- 6 **Calendar** The Calendar is a collection of menu allowing you to set a specific time and date or at a specific interval for the selected event. Daily scheduling facilities are also provided.
- 7 **General enabling** It shows the general status of the event. If not enabled, the Event is not taken into consideration by the Scheduler application.
- 8 **Update button** Once You have programmed a new Event, Update button allows You to update it into Target and Scheduler table (Event rows)
- 9 **Delete button** Deletes all the properties of the Event currently displayed on the Edit Bar.
- 10 **Preview Bar** It is cross-referenced to PTY and PSN Editor, so that it shows the contents of the item to be scheduled.

29.16.1 GETTING STARTED

Make sure that the clock shows the current time correctly.
Highlight the event to be programmed by clicking on the 'yellow' field of Event rows: the selected event will be loaded in the Edit Bar, at the bottom of the panel.

Picture shows Event 2 selection.

Event #	Item Type	Item #	Ps End
Event 1	PS	01	03
Event 2	PS	04	08
Event 3	PS	04	08
Event 4	PS	04	08
Event 5	PS	04	08

29.16.2 SELECTING AN ITEM TYPE

In this step, select the type of event(s) to be executed from the list of available items (PS, PTY/PIN,).
Clicking the drop down arrow next to the *Item Type* field will display a pull-down menu. Item Type may be picked from this menu.

29.16.3 SELECTING THE ITEM NUMBER

Having set the RDS feature to be scheduled, *Item Number* menu allows You to choose a particular PSN, or PTY Item (f.t., PSN number 4 or RT number 7).

PS End menu allows You to select the last Item of **PS Sequences**

Event 1	PS	00	07
---------	----	----	----

EXAMPLE 1

You want to schedule the PSN Sequence **RADIO / LONDON / INTNL.**
PSN Editor panel resembles the image here below

PSN No.	PROGRAM SERVICE NAME
Main PSN	RADIO
PSN 1	LONDON
PSN 2	INTNL

Event 5	--	00	--	ALL	ALL	ALL	ALL	ALL	OF
Event 6	--	00	--	ALL	ALL	ALL	ALL	ALL	OF
Event 1	PS	00	02						

PS Sequence from: "RADIO" to: "INTNL".

Scheduler panel should be configured as in the picture (NOTE: MAIN PSN is also called PSN 00)
Preview Bar will show the first and last item composing the sequence.

EXAMPLE 2

If You want to broadcast just one PSN (f.i. the PSN # 00) and **PSN Editor** panel (see par. **Errore. L'origine riferimento non è stata trovata.**) resembles the image here attached

PSN No.	PROGRAM SERVICE NAME
Main PSN	RAI MF 1
PSN 1	PSNAME01
PSN 2	PSNAME02

Event 6	--	00	--	ALL	ALL	ALL	A
Event 1	PS	00	--				

Program Service: "RAI MF 1".

Scheduler panel should be configured as in the picture
(**PS End** field is left blank - i.e. it will display the symbol --)

29.16.4 SETUP THE SCHEDULE TIME AND DATES

The Calendar zone allows You to set the date and the time the scheduler should execute the event(s). Selecting the drop down arrow next to the date fields will display specific Hour/Minute/Day/Month/Year menu. The date or time interval may be picked from this menu.

Tiger Shark scheduler operates on a time-matching basis. It means, at the beginning of every 'minute' (i.e. when internal clock reaches XX:XX:00) Tiger Shark will compare the present time with all the scheduled event start times and will activate those events where start time match the current one

The **HOUR** Menu provides the following options:

- Single Hours** Event launches any time clock hour matches the chosen one
- Time Interval** Event launches any time clock hour matches every hour inside the chosen interval
- ALL** Event launches regardless of clock hour

The **MIN** Menu provides the following options

- Single Minutes** Event launches any time clock minute matches the chosen one
- Time Interval** Event launches any time clock minute matches every minute inside the chosen interval
- Star symbol(*) + Minute digit** Star (*) symbol indicates that first minute digit (0,1,2,3,4,5) is not crucial, so that the event launches any time clock minute matches only the chosen second digit
See next Examples 7 and 8.
- ALL** Event launches regardless of clock minute

EXAMPLE 4

Event #	Item Type	Item #	Ps End	Hour	Min	Day	Month	Year	Mo	Tu	We	Th	Fr	Sa	Su	Enabled
Event 1	PS	00	--	10	34	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 2	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO

F.I., the PSN 00 scheduled in the example here above (Event 1), **will stay active just from 10: 34: 00 until 10: 34: 59 every day.**

EXAMPLE 5

Event #	Item Type	Item #	Ps End	Hour	Min	Day	Month	Year	Mo	Tu	We	Th	Fr	Sa	Su	Enabled
Event 1	PS	00	--	07-12	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 2	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO

The PSN 00 scheduled in the example here above (Event 1), **will stay active from 07: 00: 00 until 12: 59: 59 every day.**

As a specific minute indication is not provided (see selection 'All'), Tiger Shark will keep active the event beginning from the first 'hour' indication that match the current one (7 am o' clock) till the first minute of '12' hour.

EXAMPLE 6

Event #	Item Type	Item #	Ps End	Hour	Min	Day	Month	Year	Mo	Tu	We	Th	Fr	Sa	Su	Enabled
Event 1	PS	02	--	07-12	10-19	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 2	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO

The PSN 02 scheduled in the example here above (Event 1), **will stay active as follows:**

07:10 to 07:19 **09:10 to 09:19** **11:10 to 11:19**
08:10 to 08:19 **10:10 to 10:19** **12:10 to 12:19**

EXAMPLE 7

Event #	Item Type	Item #	Ps End	Hour	Min	Day	Month	Year	Mo	Tu	We	Th	Fr	Sa	Su	Enabled
Event 1	PS	04	--	13	*7	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 2	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO

The PSN 04 scheduled in the example here above (Event 1), **will stay active only as follows:**

13:07 (i.e. from 13:07:00 to 13:07:59) **13:37** (i.e. from 13:37:00 to 13:37:59)
13:17 (i.e. from 13:17:00 to 13:17:59) **13:47** (i.e. from 13:47:00 to 13:47:59)
13:27 (i.e. from 13:27:00 to 13:27:59) **13:57** (i.e. from 13:57:00 to 13:57:59)

i.e. the star (*) symbol indicates that first minute digit (0,1,2,3,4,5) is not crucial, enabling the event any time the second digit is '7'.

SCHEDULING THE DATE

Concerning **the date**, You have several choices in deciding on how often to launch the events

*Specific days of the week, e.g., MON.WED and FRI

*Specific day / days (e.g. on 10th of March 2001 or on 13th of April, whatever the Year is)

*Every day / every month on a selected day, etc

Selecting Week option will disable the 'Calendar' option.

The **DAY** Menu provides the following options

Single Day Event launches any time clock date (day) matches the chosen one
Day Interval Event launches any time clock date (day) matches every day inside the chosen interval
ALL Event launches regardless of clock day date

The **MONTH** Menu provides the following options

Single Month event is launched any time clock date (month) matches the chosen one
ALL event is launched regardless of clock date (month)

The **YEAR** Menu provides the following options

Single Year event is launched any time clock date (year) matches the chosen one

ALL event is launched regardless of clock date (year)


WEEK day option

Event is launched on every selected week day (Year, Month and Day Menu are in this case automatically disabled)

29.16.5 ENABLING AN EVENT

Once You have composed a new event from the Edit Bar, **Enable** option must be turned active (**YES**) (see Scheduler view).

29.16.6 UPDATING AN EVENT

Once You have composed a new event from the Edit Bar and You have enabled it, please click  UPDATE button to schedule event (i.e. make it effective). Please note that Update button stays disabled if event programming is uncorrect or incomplete

29.16.7 DELETING A SCHEDULED EVENT

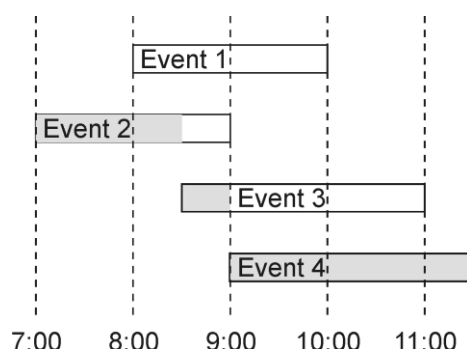
1 Select (click) the event to delete from the Event Bars: the event will be displayed in the Edit Bar

2 Select the DELETE button  from the Edit Bar

29.16.8 EVENT PRIORITY

When two or more **events** (OF THE SAME TYPE) **overlap**, the priority is automatically assigned to the event with the highest order number (e.g., Event 4 has higher priority than Event 2).

EXAMPLE 1



The picture here above shows a possible daily programming for 4 Event of the same type (f.i. 4 PSN).

In this case, only Event 4 is broadcast as programmed (from 9:00 to 11:30): Event 3 is broadcast just from 8:30 to 9:00, Event 2 from 7:00 to 8:30 and **Event 1 is kept unactive, as it is completely 'hidden' by the other events.**

We highly suggest to schedule Event with the lowest priority as DEFAULT events

EXAMPLE 8

Event #	Item Type	Item #	Ps End	Hour	Min	Day	Month	Year	Mo	Tu	We	Th	Fr	Sa	Su	Enabled
Event 1	PS	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 2	PS	01	--	07-12	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 3	PS	02	--	10-11	ALL	--	--	--	ON	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 4	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO

Event 1: PS Name # 00 (Main PS) is the **default PS** (i.e.: it is broadcast whenever no other PS are scheduled)

Event 2: PS Name # 01 is scheduled on all days, from 07.00 am to 12.59 pm. It will replace PSN 00 within this time interval.

Event 3: PS Name # 02 is scheduled just for monday from 10.00 am to 11.59 am.



When an Event ends and there's any further Events matching the current time, the Scheduler will maintain on air the last event for another 2 or 3 minutes. After that, Default PSN (i.e. PSN 00) is automatically resumed.

29.16.9 SCHEDULER OVERALL EXAMPLES

The following instructions demonstrate how to program the Scheduler to perform timing operations.

EXAMPLE 9

Event #	Item Type	Item #	Ps End	Hour	Min	Day	Month	Year	Mo	Tu	We	Th	Fr	Sa	Su	Enabled
Event 1	PS	01	03	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 2	PS	04	08	00-06	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 3	PS	04	08	06-07	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 4	PS	04	08	08-09	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 5	PS	04	08	10-11	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 6	RT	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES

Events 1 to 5 allow to broadcast two PS Sequences. Ps Sequence # 1 (from PSN 01 to PSN 03) is the default one and is broadcast every day from 12:00:00 to 23:59:59.

PS Sequence # 2 (composed by PSN 04 to 08) will be on air every day from 00:00:00 (Midnight) to 11:59:59 am.

As the time interval 00:00 to 12:00 is not preset by default, you have to cover this interval by sequencing different Events with the same PS start + PS End but different *Hour* intervals.

EXAMPLE 10 (Use of PSN Stopped)

A very advisable PS programming should include fixed PSN (i.e. 8 characters) for the most of the time (90 %) and include dynamic PS sequences starting just every few minutes (f.i. every 5 minutes).

In order to schedule such a programming, PSN Editor panel should resemble the picture here below. Note that last PSN speed (of *BBC ONE*) is set to 'Stopped' as it is that PSN which should be displayed a long time.

PSN No.	PROGRAM SERVICE NAME	PSN SPEED
Main PSN	THE	NORMAL
PSN 1	BBC	NORMAL
PSN 2	WORLD	NORMAL
PSN 3	SERVICE	NORMAL
PSN 4	BBC ONE	STOPPED

Scheduler window will resemble the following:

Event #	Item Type	Item #	Ps End	Hour	Min	Day	Month	Year	Mo	Tu	We	Th	Fr	Sa	Su	Enabled
Event 1	PS	00	04	ALL	*0	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 2	PS	00	04	ALL	*5	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 3	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO

PS Sequence from 00 to 04 will start every 5 minutes and after the first three items have been displayed once, the last PS (BBC ONE) will stay displayed until a new Event starts.

29.17 CONFIGURING EON NETWORKS IN THE DATASET 1

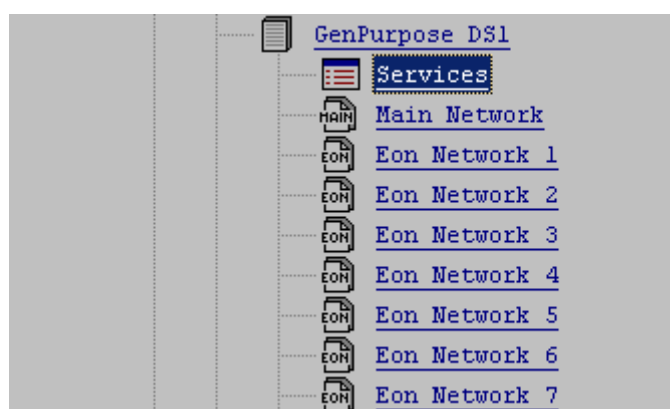
The Enhanced Other Network feature can be used to update the information stored in a receiver about programme services other than the one received. Alternative frequencies, the PS name, Traffic Programme and TrafficAnnouncement identification as well as Programme Type and Programme Item Number information can be transmitted for each other service. The relation to the corresponding programme is established by means of the relevant Programme Identification. Linkage information, consisting of four data elements, provides the means by which several programme services may be treated by the receiver as a single service during times a common programme is carried. Linkage information also provides a mechanism to signal an extended set of related services.

The Tiger Shark supports the following EON codes:

EON-PI, EON-PS, EON-TP, EON-TA, EON-AF, EON-PIN, EON-PTY.

Linkage information will be also added

For each DataSet, You may configure up to 10 different EON Network:



The EON Basic Services and AF windows are very similar to those associated to Main window. Refer to previous Chapters for their configuration.

Concerning AF, in particular, the EON services offer an additional programming method, called *Mapped Frequency Method*. Broadcasters may choose the more suitable method.

EON services must be enabled, by adding the associated Groups to the aired Group sequence.

30 DATASET 2-3-4-5-6 CONFIGURATION AND RECALL

To configure DataSet 2 - DataSet 3 - DataSet 4 - DataSet 5 - DataSet 6 apply the same steps as for configuring DataSet 1.

30.1 HOW TO 'RECALL' A DATASET

The selection of current DataSet is done from the Dataset menu, on the RDS SETTINGS page.

There are many choices available.

30.2 SELECTION OF THE 'ALTERNATIVE DATASET'

The screenshot shows a window titled 'DataSet' with three dropdown menus. The first is 'Active DataSet' set to 'DATASET 1'. The second is 'Alternative DataSet' set to 'DATASET 6'. The third is 'Alternative DataSet On' set to 'POSITIVE INPUT 1'.

The Alternative Dataset represents the alternative Dataset to the current one. Current Dataset is selected from the **Active DataSet** menu.

The Alternative Dataset may be simply recalled from an UECP command (see first item in the Menu) or from a positive (active high) or negative (active low) command applied to Inputs from 1 to 5 of Opto interface, according to the Menu.

This is the simplest way to switch between two given

Datasets: the current one (Active Dataset) and an alternative one.

Typical example: switch of the Dataset during the day, according to audio program (National / Regional) being broadcast.

30.3 DIRECT SELECTION OF DATASET 1 TROUGH A DIFFERENT DATASET

The screenshot shows a window titled 'DataSet' with three dropdown menus. The first is 'Active DataSet' set to 'DATASET 1'. The second is 'Alternative DataSet' set to 'DATASET 6'. The third is 'Alternative DataSet On' set to 'EXTERNAL CTRL'.

In addition to the selection of Alternative Dataset as shown here above, **the user can instantly recall any Dataset using a combination of Input activations on the GPI Interface or an UECP command.**

To do this, choose **EXTERNAL C(on)TR(o)L** (last item in the menu).

Combination of activation of Pins 3, 4, 5 will determine the action described in the table here below.

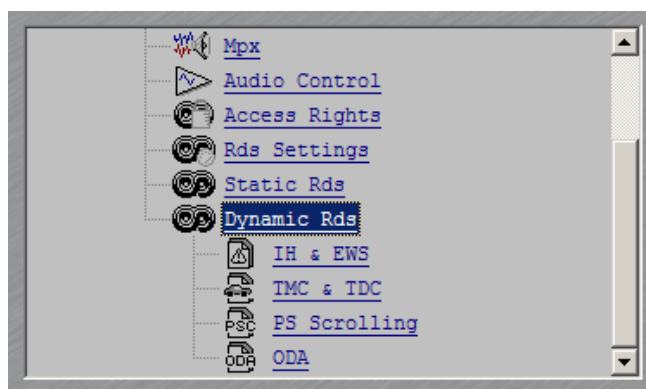
INPUT 4	INPUT 3	INPUT 2	ACTION
0	0	0	Current Dataset (according to last UECP command received)
0	0	1	Switch onto Dataset 1
0	1	0	Switch onto Dataset 2
0	1	1	Switch onto Dataset 3
1	0	0	Switch onto Dataset 4
1	0	1	Switch onto Dataset 5
1	1	0	Switch onto Dataset 6

For further details **about GPI** refer to **Appendix A** of this manual.

30.4 CHANGE DATASET DEPENDING BY AUDIO SOURCE

From release 5.2.3 AxelTechnology implemented in Tiger Shark the possibility to CHANGE dataset depending by the Audio Source. Change a DataSet it's possible from GPI, Software, UECP but it's also possible by Audio Source. In case of Fault of MAIN Audio (Analog,Digital or MPX) when Tiger Shark change Audio Input could automatically change DataSet. See Software for set this special function. This function is already know as "DataSet Chane on Changeover".

31 THE 'DYNAMIC RDS'



The Dynamic RDS section consists of four pages: one for IH and EWS services, one for TMC and TDC, one for PS Scrolling and ODA, Open Data Application.

Check the First Part of this manual to enable Ports for supporting requested services.

31.1 IN HOUSE (IH) & EWS – TMC & TDC – ODA SERVICES

In the section IH & EWS it's possible to set the command for the InHouse application and the Emergency Warning System.

The panel for IH, EWS, TDC, TMC is only used for show that IF you send a data using Tiger Shark you can receive the SAME date in the Receiver. For use this special features you need to know, and understand the UECP Protocol.

Being the TMC broadcast based on a buffer (hosting up to 180 messages), loading a new message is achieved by clicking 'Send TMC Data'.

As for IH,TMC etc the ODA, Open Data Application need to know how-to-use buy UECF Protocol. This screen want only show that it's possible to send onair, and receive data from a Transimtter center to the Receiver.

31.2 MANAGING 'PRIORITY' / DYNAMIC PS SCROLLING MESSAGES

The Tiger Shark allows to air PS messages in scrolling mode having max priority on any other PS message being broadcast at that time.

This kind of 'priority' messages are triggered by a specific, **custom command on Tiger Shark programming protocol**. The same command carries also transmission controls: number of Repetitions (how many times the Message will scroll), Number of characters in each step, the scrolling speed.

Alternatively to the protocol command, sending on air a PS in scrolling mode 'on the fly' may be accomplished from a dedicated Tiger Shark Remoter panel, called 'Dynamic program Service Scrolling' and available in the Dynamic RDS section of the Tiger Shark Remoter.

Enter up to 64 characters in the relevant field and set scrolling parameters properly. Click 'Send On Air Now' button to have the just entered Scrolling message over-riding any other PS Message on air at that time (including PS Scrolling messages possibly programmed in the PSN Panel – ref to Paragraph **Errore. L'origine riferimento non è stata trovata.** on this User Manual Section).

For a proper operation of Dynamic Ps Scrolling panel, a 'default' PS EVENT should be programmed in the Scheduler panel. That event, normally consisting in the MAIN PS message activated on ALL minutes, ALL hours, ALL days in the year, will be resumed as soon as the number of set repetitions will expire. Pictures here below show a typical example of 'default' PS event programming.

If no 'default' PS events are scheduled in the Scheduler panel, it may took a few minutes before the Tiger Shark comes back to the Main PS Message entered in the PSN Panel.

PROGRAM SERVICE NAME EDITOR		
PS No.	PROGRAM SERVICE NAME	PS SPEED
Main PS	RADIO 1	NORMAL
PS 1	PSNAME01	NORMAL
PS 2	PSNAME02	NORMAL

Event #	Item Type	Item #	Ps End	Hour	Min	Day	Month	Year	Mo	Tu	We	Th	Fr	Sa	Su	Enabled
Event 1	PS	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	YES
Event 2	--	00	--	ALL	ALL	ALL	ALL	ALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	NO

PS Scrolling Message

Scrolling Repetitions : No repetitions

Number of char per step : 01

Scrolling Speed : Normal

i

1. - For proper operation of this facility a Default PS Event must be scheduled as always active in the Scheduler panel
 2. - The 'on-air' actual scrolling speed depends on the user's choice (Scrolling Speed menu) and on the rate of DA Group inside the broadcast group sequence. Please refer to the User's Manual for details;

Send On Air Now

Close

WARNING: if the PS is constantly changed (as in the PS Scrolling mode), it is possible that some receivers will display a mixture of old and new PS message on the same display. In some cases, no PS will be displayed at all. This may occurs as message byte group order is not univocally recommended by the CENELEC RDS standard and strictly depends on the coder/decoder physical implementation. Neither the RDS encoder nor the car receiver are faulty. We therefore suggest to choose lower display speeds.

32 TECHNICAL SPECIFICATIONS

32.1 GENERAL

GENERAL	
Dimensions	1 rack unit, 352 x 483 x 44 mm
Weight	around 4.5 Kg
~ AC Rate	230 Vac 50 Hz / 115 Vac 60 Hz $\pm 10\%$
Power consumption	40 VA
Type of power supply	Transformer- based
AC connector	IEC, with detachable 3-wire power cord. EMI-suppressed
Processing architecture	fully digital. Based on DSP 24bit/100Mhz. Signal processing is performed by phase linear filters.
Operating temp. range	- 5 to + 50 °C

AC MAINS FUSE	
Ratings	250 mA T (for 230 Vac), 500 mA T (for 115 Vac)
Dimensions	5 x 20 mm glass tube
Type	Timed (slow blow)

32.2 COMMUNICATION

COMMUNICATION	
Serial Ports	3 x RS232 optoinsulated or 2 x RS232 + 1 x RS485 (option). Serial Port 1 is replicated on Front Panel for easy connection.
Serial Port Baud Rate	1200 – 2400 – 4800 – 9600 – 19200 - 38400 Baud
Dial-Up modem	Serial Port 1 supports dial-up modems.
Ethernet	10/100 BaseT Ethernet on RJ45 connector
Supported Protocols	<ul style="list-style-type: none"> - SNMP (Simple Network Management Protocol) - UECF (Universal Encoder Communication Protocol) 6.02 SPB 490 - TCP/IP, - NTP (Network Time Protocol) - dedicated ASCII protocol to interface to radio automation systems
Communication tools	<ul style="list-style-type: none"> - integrated Web Server, - dedicated Pc Control Software, - textual Configuration Editor
Front panel LEDs purpose	Dynamic Buffer, current audio source, serial port activity, alarms / general Warning

32.3 INPUTS /OUTPUTS

GPI/O INTERFACE	
Inputs	8, optocoupled, floating
Outputs	8 Relays
Connector	2 x SubD 25 pin female, EMI suppressed
GPI Purpose	TA, M/S, Dataset selection, MPX routing control (option), input selection, etc
Relay Purpose	Current audio source, 4 remote controls on IH, alarm on main audio source

AUX IN (1 AND 2)	
Connector Type	floating BNC, EMI suppressed
Pass-through Level	-40dB ÷ + 20 dB trimmer adj. max 24 Vpp input
Frequency response	30 Hz ÷ 80 KHz +/- 0.1 dB
Distortion	< 0.03 %
Input Impedance	> 10 Kohm

SYNC-OUT *	
Connector Type	floating BNC, EMI suppressed
Purpose	TTL-level (5Vpp) 19 kHz Pilot Ref. Out for synchronizing external RDS coders.
Sync Out phase error	± 2 degrees (maximum)

* active on Tiger Shark only.

SYNC-IN **	
Connector Type	floating BNC, EMI suppressed
Sync-In	Accepts TTL (square-wave) for RDS synch. (ETS compliant). Enabled by software

** active on Tiger- Shark- RDS only

MPX, RDS & MPX+RDS OUTPUTS	
Output Connectors	Two BNC, floating over chassis ground, EMI suppressed
Load Impedance	600 Ohm or greater
Source impedance	10 Ohm
D/A Conversion	Burr Brown PCM1704
Maximum Load Capacitance	5nF
External MPX summation	With external MPX injected into Aux 1 (Aux 2 if selected by jumper)
Composite output level	- 9.0dBm to +15.0 dBm (0.1 dBm step)

ANALOG AUDIO INPUT	
Connectors	Two EMI-suppressed XLR female.
Input Configuration	Stereo.
Input impedance	600 / 10K / 50 K ohms electronically balanced, jumper selectable
Nominal Input Level (sensitivity)	Software adjustable from -9dBm to +15.0 dBm
Level Range	-21.0dBu ÷ + 24.0dBu
Max Input Level	+ 24dBu
A/D Conversion	Crystal Semiconductor CS4224, 24 bit /48 Khz delta sigma converter.
Input CMRR	>60dB (20Hz-20kHz)
Headroom	10 dB (default) / 20 dB (Full Range Mode)

DIGITAL AUDIO INPUT	
Connector Type	XLR female & optical tos/link. XLR transformer balanced & floating. 110 Ohm impedance
Input Configuration	Stereo.
Formats	AES3/EBU & Spdif
Input Rates	32/44.1/48/64/88.2/96KHz with automatic selection and jitter correction
Nominal Level adj (sensitivity)	From 0.0dBFs to -24dBFs (0.1dBu Step)
Level Range	0.0 dBFs ÷ -36dBFs
Dynamic Range (Rate Converter)	124dB (32Khz) – 126dB (44.1Khz) 126dB (48Khz) - 122dB (96Khz)
Resolution	16 / 24 bit

MP3 PLAYER (available as an option)	
Storage card Type	SD CARD
Supported audio files	.Wav and .Mp3 audio files
Purpose	Back-up audio source. Replaces either the analog or the digital input

32.4 MPX DETECTOR

MPX DETECTOR STAGE	
Input	An external MPX signal applied to AUX-1 input (by default) or Aux-2 input / the same MPX generated by the Tiger Shark
Controls	MPX deviation (deviation > 80 kHz rises alarm) Audio Presence (lack of Main and Sub part rises alarm) Pilot presence (lack of Pilot rises alarm) RDS Presence (lack of RDS or low quality in RDS rises alarm) RDS PI Code (a received PI different from the set one rises alarm)
Purpose	Detecting an external MPX source, in order to replace it by self-generated MPX in the event of any fault. Switching may be also forced by an external trigger command applied to GPI 1.

32.5 INPUT CHANGEOVER

INPUT CHANGEOVER	
Inputs	Stereo analog audio, AES / EBU audio, Auxiliary MPX
Fail mode	Lack of analog or AES/EBU audio / any of MPX Detector controls (see MPX DETECTOR STAGE)
Fail Time	From 1 to 120 seconds
	No Signal on Primary input. Either Analog or Digital audio Input can be set as primary
Restore Time	5 secs or 5 minutes (user settable)

32.6 AUDIO LIMITER STAGE

AUDIO LIMITER	
Purposes	<ul style="list-style-type: none"> - Overcoming errors and distortions which usually appear as undesired peaks (as high as 100 or more KHz of deviation, assuming 75 KHz mean value) on input audio program. - Control of sudden level changes on input program (up to 3 dB) - Compensation for slow input audio level changes (<i>fading</i>) - Increasing of output MPX density - Application of a smooth (logarithmic) clipping process to incoming audio to reduce out-of-band noise and therefore improve Rds and Aux signals quality
Limiter stage sources	Audio limiter applies to both analog and digital input sources.
Limiter modes	Disabled, Low Protection, High Protection
AGC speed controls	0.05 dB/s ÷ 0.2 dB/s
AGC Gate Thresholds	- 18 dBr / - 12 dBr / - 6 dBr / - 3 dBr
Stereo Enhancer Control	Enabled / Disable
Stereo Enhancer - Effect Levels	Low / Normal / High

32.7 MPX (STEREO) GENERATOR

Pilot Frequency	19 KHz +/- 1Hz
Pilot Injection	Adj from -25.0 dB to -15.5 dB (0.1 dB step); 6 to 18% of total deviation
Pilot Stability:	±10 ppm (-10 to +55 °C)
Pilot Phase	Adjustable +/- 12 deg. (1 deg step)
Pilot distortion	0.05 % (typical)
Pilot distortion + Noise	0.068% (on 100Khz Band)
S/N	> 90 dB (on 100 kHz band)
Composite out THD	0.005 % (typical on the whole band)
Stereo Separation	>70 dB (typical on the whole band)
Linear Crosstalk:	≤ -80 dB, main channel to sub-channel or sub-channel to main channel (referenced to 100% modulation).
Crosstalk Main to Sub / Sub to Main	> 65 dB (minimum)
Composite Clip Drive:	+0.0 to +6.0dB (0.1dB step), software controlled (manually or automatically)
Digital filtering / band	30 Hz to 15 kHz (-0.1 dB), 17 kHz (-70 dB), 19 kHz (-100 dB)
57 kHz (RDS/RBDS) Protection	Better than 51 dB
38KHz suppress.	< - 80dB (typical)
Pre-emphasis	Off, 50uS, 75uS (+/-0.1dB)
Freq Response	±0.3 dB (30Hz-15kHz)
Operation	Mono /Stereo

Signal processing is performed by phase linear filters / all measurements referenced to 100% modulation unless otherwise noted. Tiger Shark version only.

TEST CONDITIONS: OUT LEVEL = +12dBm, LOAD=600Ohm, PILOT LEV= -20Db MODE=STEREO

32.8 RDS / RBDS ENCODING

MODULATION	
RDS Signal generation	DSP-based , compliant to CENELEC EN 50067
RBDS Signal generation	DSP-based , compliant to United States NRSC
Coding	Differential and bi-phase
Modulation	Amplitude modulation double side band, with suppressed carrier
Subcarrier frequency	57 kHz ± 3 Hz
Bandwidth	± 2.5 kHz (- 60 dB) ± 3.0 kHz (- 80 dB)
Linear Distortion	0.01 dB
RDS / RBDS output level	0 ÷ 8200 mVpp (10 mVpp steps)
RDS phase	adj ± 120 deg (referred to MPX pilot). 1 deg step
Synchronization	Either to external 19Khz pilot tone or to external FM stereo Mpx signal. Automatic switchover to internal oscillator in case of absence or low quality of external reference signal

32.9 RDS/RBDS ENCODING & PROGRAMMING

RDS PROGRAMMING		
RDS Command formats	fully compliant to UECP Forum document SPB 490 (Version 6.02) plus extended manufacturer 's commands list	
Static services supported		
	PS	Programme Service
	PI	Programme Identification
	ECC	Extended Country Codes
	PTY	Programme-type
	PTYN	Programme Type Name
	TP	Traffic-programme
	TA	Traffic-announcement
	MS	Music Speech
	DI	Decoder Identification
	AF	Alternative Frequencies
	PIN	Programme-item number
	EON	Enhanced Other Networks
	CT	Clock-time and date
	RT	Radio Text
	LA	Linkage Actuator
	EG	Extended Generic indicator
	ILS	International Linkage Set indicator
	LSN	Linkage Set Number
	LIC	Language Identification Code
	SLC	Slow Labeling Code
Dynamic services supported		
	ODA	Open Data Application
	TMC	Traffic Message Channel
	EWS	Emergency Warning System
	IH	In House application
	TDC	Transparent Data Channel
Groups	0A, 0B, 1A, 1B, 2A, 2B, 3A, 3B, 4B, 5A, 5B, 6A, 6B, 7A, 7B, 8A, 8B, 9A, 9B, 10A, 10B, 11A, 11B, 12A, 12B, 13A, 13B, 14A, 14B, 15B	
Character repertoires (ref Cenelec tables E1, E2, E3)	ISO 8859-1(Latin 1), ISO 8859-2(Latin 2), ISO 8859-5(Cyrillic), ISO 8859-7(Greek), ISO 8859-9(Turkish), ISO 8859-10(Nordic languages)	
Data Sets	6, with recall by UECP Command, GPI and software control	
AF lists for each Data Set	64, containing up to 25 freq each one	
PS messages for each Data Set	64 (one of which programmable accordingly to UECP).	
PS animation	Capability to transmit PS in sequences (composed by up to 60 PS) and in scrolling mode (up to 64 chars long text). Scrolling mode user controls: number of repetitions, step size, scrolling speed.	
RT messages for each Data Set	16 with A/B flag control (one of which programmable accordingly to UECP)	
Scheduler	Manufacturer's specific application, with capability to program up to 64 events (PS, PTY/PIN) to occur at any time with duration from 1 minute to 1 year	
Interface to external Radio Automation Systems	Achieved by dedicated ASCII protocol, for RT and PS Scrolling external-driven messages.	

32.10 IH REMOTE CONTROL

Purpose	Carrying of 4 contact closures on IH (In House Application) RDS service (silently)
Remote controls input	GPI in on transmitting side
Remote controls output	Relay outputs on receiving side

32.11 SOFTWARE TOOLS

TIGER-SHARK REMOTER	For Microsoft Windows 2000 sp4 / Windows XP sp2. For complete setup, management and control of coders in groups or individually. Capability for bidirectional and Unidirectional (one-way) links. There is no limit in the number of units which can be controlled from a single software license.
CONFIGURATION EDITOR	User-friendly, Notepad-like interface to edit, copy, load or download Tiger Shark's configuration in a full textual way. It allows to replicate common settings on multiple Tiger Shark units in seconds.
TARGET ADDRESS MANAGER	To assign UECP / customized address to each target and to enable/disable supported services.

Data, specifications and layouts are furnished for informational use only and are subject to change at any time without notice.

33 WARRANTY

The manufacturer offers a 1-year ex works warranty. Do not open the equipment. The warranty shall be voided if any of the warranty seals are broken. The manufacturer shall not be liable for damage of any kind deriving from or in relation to incorrect use of the product.

34 DECLARATION OF ROHS CONFORMITY (INTERNATIONAL)

To minimize the environmental impact and take more responsibility to the earth we live, in accordance with European Union Directive 2002/95/EC, known commonly as RoHS (*Restriction of Hazardous Substances*),

We herewith declare,

Axel Technology srl
Via Caduti di Sabbiuno 6/F
40011 Anzola Emilia – Bologna - Italy

that the product listed below complies with the requirements of Directive 2002/95/EC, Article 4, paragraph 1 with reference to hazardous chemical substances:

Lead (Pb)
Hexavalent Chromium (CrVI)
Mercury (Hg)
PBB (Flame Retardant)
PBDE (Flame Retardant)
Cadmium (Cd)

Product Description: **TIGER SHARK & TIGER SHARK-R**



Authorized Company Representative:

Title of Signatory:

Christian Sighinolfi
 R&D Technical Manager

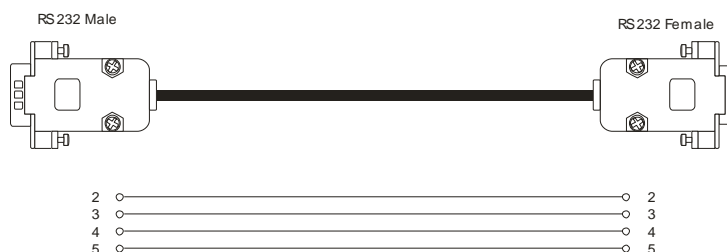
Date:

March 2010

35 APPENDIX A – CONNECTOR PINOUT

35.1 RS232 CONNECTION AND PINOUT

PORT 1		PORT 2,3,4	
2	Tx	2	Tx
3	Rx	3	Rx
4	DTR	4	/
5	GND	5	GND



Pc connection require standard serial cables, Pin-To-Pin type, that is 'not cross'. For a correct operation, connections length must not exceed the length of 20 meters.

Ports 2 and 3 use only Tx, Rx and GND signal for PC connection, while Port 1 support also the DTR (Data Terminal Ready) signal, used for modem connection. Port speed must be similar for communicating.

35.2 RS485 CONNECTION AND PINOUT

Tiger Shark RS485 card (available as an option) has been designed for the easiest and straightforward connection of multiple device in chain / cascade. Featuring an either Male or Female DB8 connector internally paralleled, you can use forward (pin-to-pin) serial cables to chain multiple Tiger Shark units in a RS485 bus. The board supports both Full and Half connection modes.

Port Baud Rate is not configurable independently but follows the settings of Port 1.

35.2.1 PORT PIN-OUT



PORT 3 PinOut (SubD Male, 9 pins)

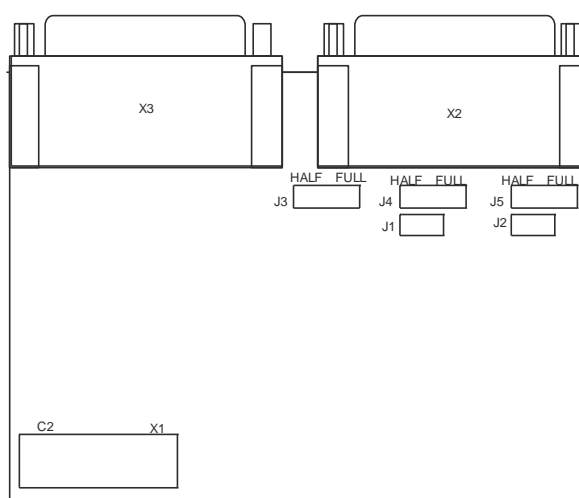
Pin	Description
1	RX+ (internally paralleled to Pin 1 of Port4)
2	RX- (internally paralleled to Pin 2 of X3 connector)
3	TX+ (internally paralleled to Pin 3 of X3 connector)
4	TX- (internally paralleled to Pin 4 of X3 connector)
5	Internal Ground (internally paralleled to Pin 5 of X3 connector)
6	Not connected
7	Not connected
8	Not connected
9	Not connected
10	Frame / External Guide



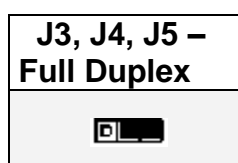
PLEASE NOTE: Refer to pag. 32 First Part of this Manual for SPECIAL UECP in EXTENDED PORT!

PORT 4 PinOut (SubD Female, 9 pins)

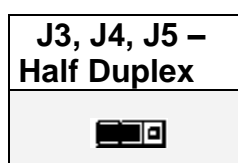
Pin	Description
1	RX+ (internally paralleled to Pin 1 of X2 connector)
2	RX- (internally paralleled to Pin 2 of X2 connector)
3	TX+ (internally paralleled to Pin 3 of X2 connector)
4	TX- (internally paralleled to Pin 4 of X2 connector)
5	Internal Ground (internally paralleled to Pin 5 of X2 connector)
6	Not connected
7	Not connected
8	Not connected
9	Not connected
10	Frame / External Guide

35.2.2 JUMPER SETTINGS (FULL /HALF DUPLEX and LINE LOAD)

FULL DUPLEX MODE

To set the RS485 port in Full Duplex mode, move J3, J4 and J5 as in the picture here below (toward the right side of the card):


HALF DUPLEX MODE

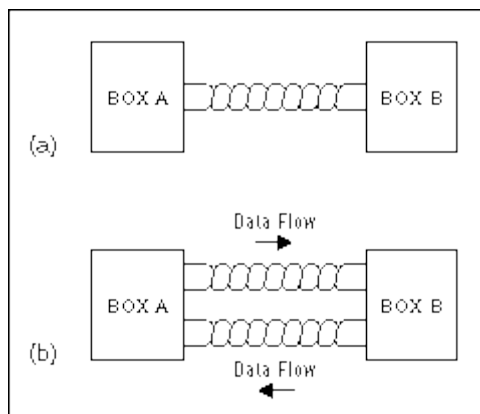
To set the RS485 port in Half Duplex mode, move J3, J4 and J5 as in the picture here below (toward the Left side of the card):


APPLYING A 120 OHM TO THE LINE

Jumper J1 and J2 apply, when close, a 120 Ohm resistive load to the Lines connected to Port 3 and Port4 connectors

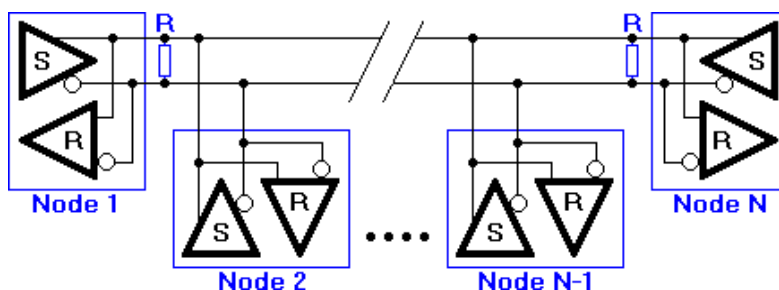
35.2.3 Full/Half Duplex

RS-485 is designed in such a way that only one transmitter on a twisted pair can be active at a time. With this constraint, in the system shown in Figure 4a, Box A can transmit data to Box B or Box B can transmit data to Box A, but both can't transmit data at the same time. This is referred to as "half duplex." A full-duplex system, on the other hand, would allow communications in both directions simultaneously. Full-duplex systems can be designed using RS-485, but require two twisted-pair cables running between nodes, as shown in Figure 4b. One twisted pair is dedicated to transmitting information in one direction, and the other twisted pair is dedicated to transmitting data in the opposite direction. Each system requires slightly different physical devices. Figure 5a shows a typical half-duplex part, and Figure 5b shows a typical full-duplex part.



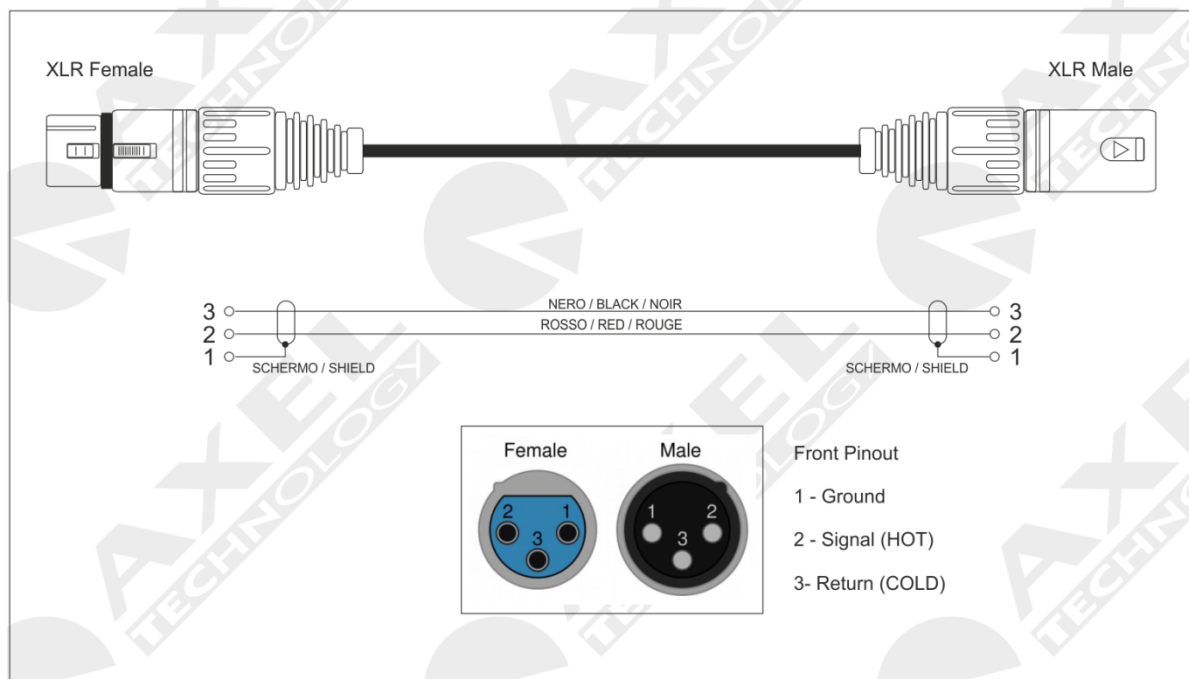
Half-duplex RS-485 system (a); full-duplex RS-485 system. (b)

35.2.4 RS485 NETWORK TOPOLOGY



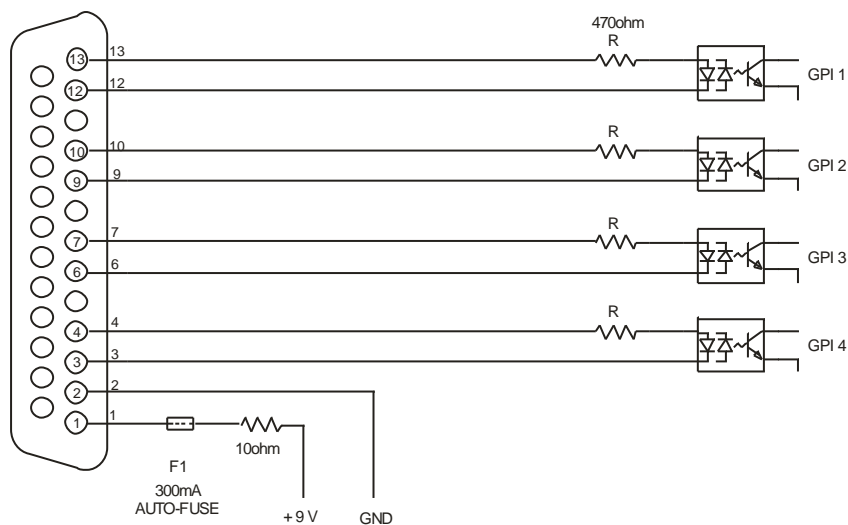
In the picture above, the general network topology of RS485 is shown. N nodes are connected in a multipoint RS485 network. For higher speeds and longer lines, the termination resistances are necessary on both ends of the line to eliminate reflections. Use 100 Ohm resistors on both ends. The RS485 network must be designed as one line with multiple drops, not as a star. Although total cable length maybe shorter in a star configuration, adequate termination is not possible anymore and signal quality may degrade significantly.

35.3 ANALOG & DIGITAL AUDIO CONNECTION

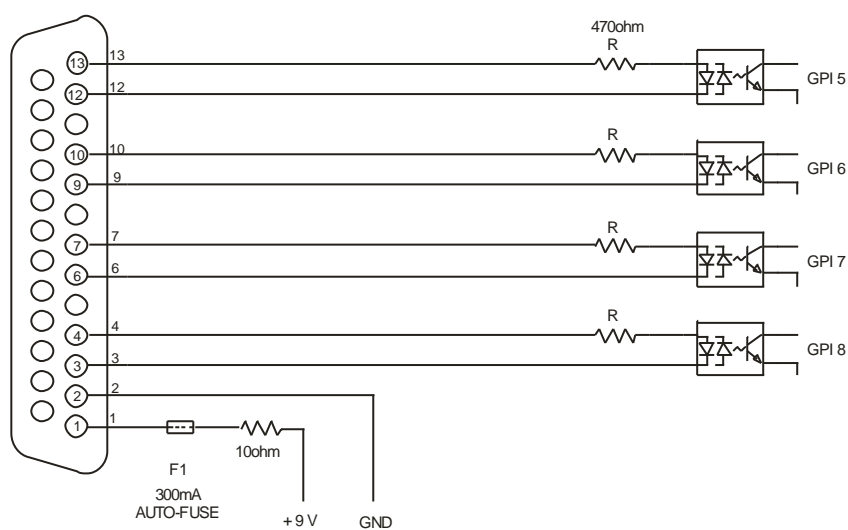


35.4 GPI CONNECTIONS

PORT 1

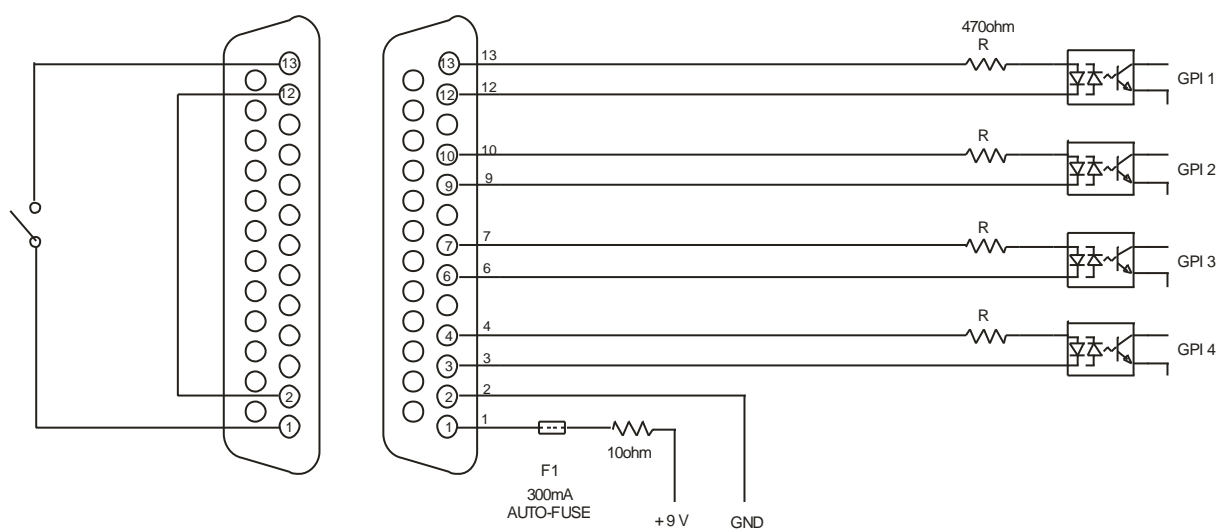


PORT 2

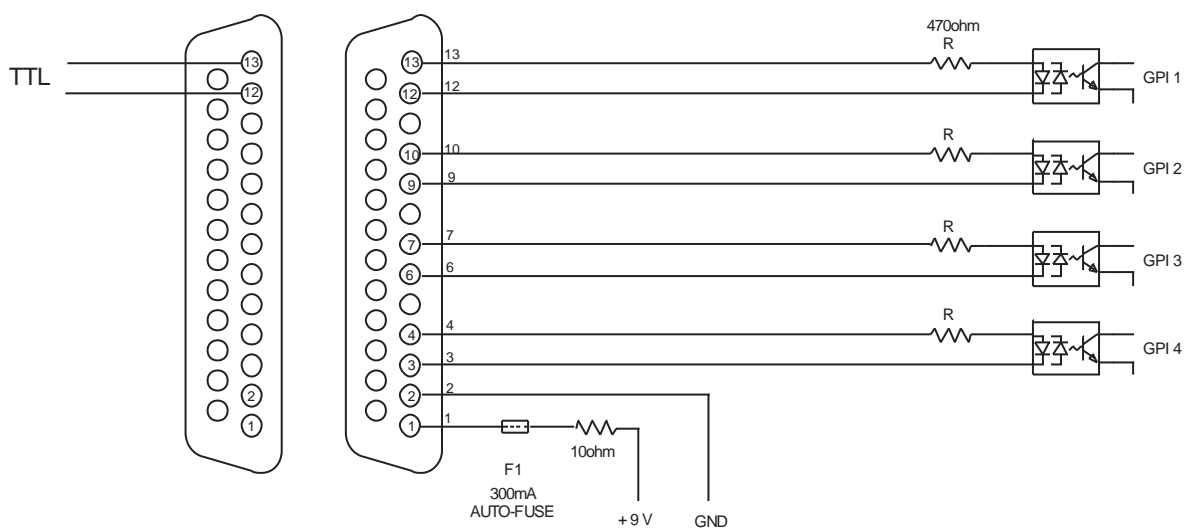


The pins 3, 4, 6, 7, 9, 10, 12 and 13 are connected to optoisolators not polarized. A current-limited + 9 Vdc source through an auto-fuse and a 10 Ohm resistor is available on pin 1.

35.4.1 EXAMPLE OF ACTIVATION OF INPUT 1 BY CLEAN CONTACT

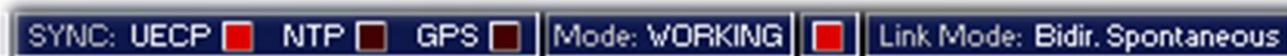


35.4.2 EXAMPLE OF ACTIVATION OF INPUT 1 BY TTL



35.5 TIME SYNCH IN TIGER SHARK

With Tiger Shark it is possible to set the internal clock time in 3 different way. It is possible to use GPS, NTP or UECP RTC.



The status monitor for Time Sync is showed in the bottom bar of Tiger Shark Remoter or Web Server and SNMP.

COLOR	FUNCTION	ICON
BLACK	Function Disabled	
RED	Function Enabled, but Server Time not found	
GREEN	Syncronization properly working	

Using GPS:

It is possible to connect at port COM3 a GPS Receiver, for set the time. As antenna GPS is suggest Axel Technology Sat Time Synchronizer. This is the color specification for the Led Status Bar



BLACK: Function Disabled

RED: Function Enabled, but no Gps Antenna found

ORANGE: Gps Antenna Found, but no Satellite connection.

GREEN: Connection ok.



Using NTP:

Network Time Protocol it's a protocol used for keep in synchronization internal time in a net, or a computer or Falcon 5. This is the color specification for the Led Status Bar



Using UECP:

It's possible to use UECP for keep in sync Falcon Five's Time.

Falcon Five wait a UECP RTC message once 10 minutes, but not at 00 Second HH:mm:00 - Suggested is a RT Message every 5'30"



RED: In the last ten minutes it's not arrived a a UECP RTC command

GREEN: In the last ten minutes it's arrived a valid UECP RTC command



If this tree services are available, the priority rank is:

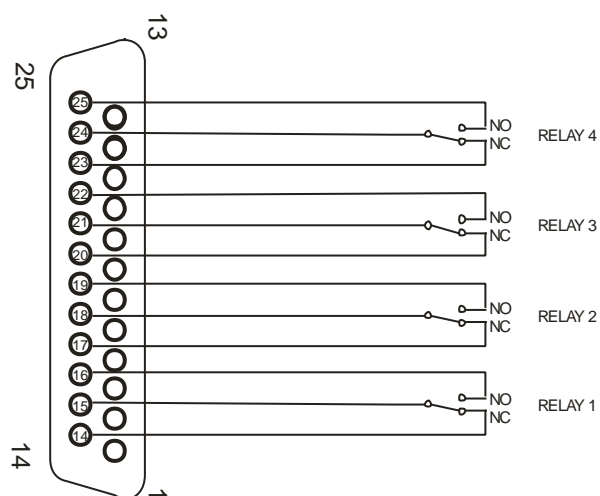
1	UECP
2	GPS
3	NTP

Falcon Five automatically set the time, once at the accension, and then every 10 minutes at HH:mm:30

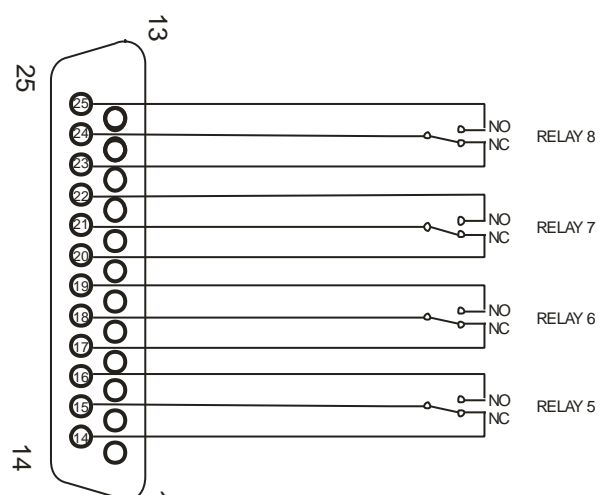


35.6 RELAY OUTPUT CONNECTIONS

PORT 1



PORT 2



36 APPENDIX B - CONFIGURATION EDITOR SYNTAX

General Rules:

- From first ';' symbol (semicolon) to the line end the following text is considered a commentary.
- The symbol '=' (equals) assigns a single value (or a list of values) to the related command.
 - The items of a data list are separated by ',' (comma) symbol.
 - A non predefined alphanumeric string containing blank spaces must be typed between inverted commas (normally, blank spaces are syntax separators).
 - Each numeric digit must carry own sign (plus-minus) and unit of measure. As default 0 (zero) has a positive sign.
 - Non significant trailing zeroes for numeric fields are avoided (e.g. +05dB is incorrect, +5dB is right).
 - Each logical command group is grouped by an identifier closed between square brackets. In turn logic groups joints are memory blocks (e.g. in the case of Dataset)
- Blanks, capital letters, small letters and indentations are not relevant. Any way, we highly suggest to follow the data format provided by Demo files, or software newly generated ones.
- The configuration editor may highlight syntax errors and warnings. Pay attention to warnings because they traces small data insertion errors.
- Possible predefined values for each parameter are shown here between curly braces {} and separated by commas. This notation doesn't reflect real syntax rule and was be used only to identify possible values that can be assigned to a parameter.
- The end of logical programming blocks are indicated as " End Point(x) ". Long programming sequences may be therefore interrupted without errors only in corispondance of these End lines.

[GENERAL_SETTINGS] ; Start of global setup logical group.

TARGET_MODEL={ Tiger Shark_Rds , Tiger Shark_Mpx , Tiger Shark_Mpx/Rds , Tiger Shark_Mpx/Lim ,
Tiger Shark_Mpx/Lim/Rds , Tiger Shark_Rds_Group , Tiger Shark_Mpx_Group ,
Tiger Shark_Mpx/Rds_Group , Tiger Shark_Mpx/Lim_Group , Tiger Shark_Mpx/Rds/Lim_Group)

FIRMWARE_VERSION={ 5.2 }

TARGET_NAME="" ; up to 32 chars (it appears in the Navigation Tree of control software)

TARGET_LABEL="TIGER-SHARKMK3" ; up to 8 chars (it appears on target frontal display)

INPUT_SIGNAL={ Analogic , Digital , Mpx }

DIGITAL_RESOLUTION={ 16Bits , 24Bits }

LEFT_GAIN={ -12.0dB , -11.9dB , ... , +0.0dB , ... , +11.9dB , +12.0dB }

RIGHT_GAIN={ -12.0dB , -11.9dB , ... , +0.0dB , ... , +11.9dB , +12.0dB }

ANALOGIC_SENSIBILITY={ -9.0dBm , -8.9dBm , ... , +0.0dB , ... , +14.9dBm , +15.0dBm }

DIGITAL_SENSIBILITY={ +0.0dBfs , -0.1dBfs , ... , +0.0dB , ... , -23.9dBfs , -24.0dBfs }

SNMP_WRITE_COMMUNITY_PASSWORD="private" ; up to 8 chars

SNMP_READ_COMMUNITY_PASSWORD="public" ; up to 8 chars

SYSTEM_PASSWORD="" ; up to 8 chars

EXTERNAL_PORT_MODE={ Off , On }

[END_GENERAL_SETTINGS] ; End of global setup logical group

[MPX_SETTINGS] ; Start of Mpx setup logical group

MPX_LEVEL={ -9.0dBm , -8.9dBm , ... , +0.0dBm , ... , +14.9dBm , +15.0dBm }

PILOT_LEVEL={ Off , -25.0dB , -24.9dB , ... , -20.0dB , ... , -15.6dB , -15.5dB }

PILOT_PHASE={ -12deg , -11deg , ... , +0deg , ... , +11deg , +12deg }

POST_CLIPPER_GAIN={ -6.0dB , -5.9dB , ... , +0.0dB , ... , +5.9dB , +6.0dB }

SYNC_OUT={ Enabled , Disabled }

MPX_MODE={ Mono , Stereo }

PREEMPHASIS={ Off , 50us , 75us }

CHECK_AUX_MPX_DEVIATION={ Off , On }

CHECK_AUDIO_QUALITY_ON_AUX_MPX={ Off , On }

CHECK_PILOT_PRESENCE_ON_AUX_MPX={ Off , On }

CHECK_RDS_PRESENCE_AND_PI_ON_AUX_MPX={ Off , On }

RDS_PI_ON_AUX_MPX=5000 ; four digits exadecimal value (0000 = check only Rds presence)

FORCE_SECONDARY_INPUT_FROM_GPI_1={ Off , On }

OUTPUT_MODE={ Normal , Tone , Splitter }

[END_MPX_SETTINGS] ; End of Setup Mpx logical group

[AUDIO_CONTROL] ; Start of Audio control logical group

WORK_MODE={ Linear , Linear_Full_Range , Clipper_Manual ,

Clipper_Safe_Auto , Clipper_Normal_Auto , Clipper_Aggressive_Auto ,
Log_Clipper_Safe_Auto , Log_Clipper_Normal_Auto ,
Log_Clipper_Aggressive_Auto }

AGC_GATE={-18dB , -12dB , -6dB , -3dB}
AGC_SPEED={0.05dB/Sec , 0.10dB/Sec , 0.15dB/Sec , 0.20dB/Sec }
AGC_MODE={Unlinked , Linked }
AGC_MIN_GAIN={ -12.0dB , -11.9dB , ..., -0.1dB , +0.0dB }
AGC_MAX_GAIN={ +0.0dB , +0.1dB , ..., +11.9dB , +12.0dB }
STEREO_ENHANCER={ Off , Low , Normal , High };
LIMITER={ Off , High_Protection , Low_Protection }
SECONDARY_INPUT= { Off , Analogic , Digital , Mpx }
COMMUTATION_TIME={ 1Sec , 2Sec , ... , 120Sec }
CHECK_AUDIO_PRESENCE={ Off , On }
SWITCHING_TIME={ 5sec , 5min }

[END_AUDIO_CONTROL] ; End of Audio control logical group

[ACCESS_RIGHTS] ; Start of Port Access Rights logical group

; User can modify access rights for these services of each Port:

```
;
; - Code - Service Description -
;
; 01 PI
; 02 PS
; 03 TA/TP
; 04 DI
; 05 MS
; 06 PIN
; 07 PTY
; 0A RT
; 0B PSN Enable/Disable
; 0D Real Time Clock
; 0E RDS Level
; 13 AF
; 14 EON AF
; 15 EON TA Control
; 16 Group Sequence
; 17 Request Message
; 18 Message Acknowledgment
; 19 CT On/Off
; 1A Slow Labelling Codes
; 1C Dataset Select
; 1E RDS On/Off
; 22 RDS Phase
; 23 Site Address
; 25 IH
; 26 TDC
; 27 Encoder Address
; 28 Make PSN List
; 2A TA Control
; 2B EWS
; 2C Communication Mode
; 2D Manufacturer's or Network Operator's Specific Command
; 2E Linkage Information
; 2F PS Character Code Table Selection
; 30 TMC
; 3A Encoder Access Right
; 3B Communication Port Configuration - Mode
; 3C Communication Port Configuration - Speed
; 3D Communication Port Configuration - Timeout
; 3E PTYN
; 40 ODA Configuration and Short Message Command
; 41 ODA Identification Group Usage Sequence
; 42 ODA Free-Format Group
; 43 ODA Relative Priority Group Sequence
```

```
; 44 ODA "Burst Mode" Control
; 45 ODA "Spinning Wheel" Timing Control
; 46 ODA Data
; 47 ODA Data Command Access Right
;
; for each Port.
;
; NOTE: For current port disable ALL services is not allowed.
;       User can specify service ID (separated by comma) or
;       simply type NONE or ALL for a global Enable/Disable.
;
; *** Current Port: Port 1 ***
```

```
PORT_1_ENABLED_SERVICES=ALL1
PORT_2_ENABLED_SERVICES=ALL
PORT_3_ENABLED_SERVICES=ALL
```

[END_ACCESS_RIGHTS] ; End of Port Access Rights logical group

[RDS_SETTINGS] ; Start of RDS setup logical group

```
RDS_ON_OFF={ Off, On }
ADD_RDS_TO_AUX_MPX={ Off, On }
RDS_LEVEL={Off , -43.9dB, -43.8dB , .. , -31.5dB , .. , -20.1dB , -20.0dB }
RDS_LEVEL={0.000Vpp , 0.005Vpp , 0.010Vpp , .. , 1.195Vpp , 1.200Vpp }2
RDS_PHASE={-120Deg , -119Deg , .. , +0Deg , .. , +119Deg , +120Deg }
RDS_MODE={Uecp_Compatible, Uecp_Extended }
RDS_SYNC={Internal , External}
ACTIVE_DATASET={DataSet_1 , DataSet_2 , DataSet_3 , DataSet_4 , DataSet_5 , DataSet_6 }
ALTERNATIVE_DATASET={ DataSet_1,DataSet_2,DataSet_3,DataSet_4,DataSet_5,DataSet_6 }
ALTERNATIVE_DATASET_ON={Uecp_Command , External_Input_1 , .. , External_Input_5}
PS_CHARACTER_CODE_TABLE_SELECT={ No_Control_Characters , Ebu_Latin_Based ,
                                Ebu_Common_Core, Iso_646}
LANGUAGE_CODE_TABLE_SELECT={ Latin_1 , Latin_2 , Cyrillic , Greek , Turkish ,
                             Nordic_Languages }
TA_CONTROL_GROUP_SPACING={ 0 , 1 , ... , 8 }
TA_CONTROL_ON_TRANSITION_GROUPS={ 0 , 1 , ... , 15 }
TA_CONTROL_OFF_TRANSITION_GROUPS={ 0 , 1 , ... , 15 }
EON_TA_CONTROL_GROUP_SPACING={ 0 , 1 , ... , 8 }
EON_TA_CONTROL_ON_TRANSITION_GROUPS={ 0 , 1 , ... , 15 }
EON_TA_CONTROL_OFF_TRANSITION_GROUPS={ 0 , 1 , ... , 15 }
```

[END_RDS_SETTINGS] ; End of RDS Setup logical group

[REAL_TIME_CLOCK] ; Start of RTC group

```
RDS_CT={Enabled , Disabled}
RDS_TIME_OFFSET={-12:00 , -11:30 , .. , +0:00 , .. , +11:30 , +12:00}
```

[END_REAL_TIME_CLOCK] ☐ End Point(1)³

[START_DATASET_1] ; Start of DataSet 1 commands group

[SERVICES_SETUP] ; Start of RDS Services group

```
GROUP_SEQUENCE= { 0A , 0B , 1A , 1B , 2A , 2B , 3A , 3B , 4B , 5A , 5B ,      6A , 6B , 7A , 7B ,
8A , 8B , 9A , 9B , 10A , 10B , 11A ,      11B , 12A , 12B , 13A , 13B , 14A , 14B , 15B }4
```

¹ User can specify codes separated by commas or all codes by 'ALL' identifier.

² For Rds Only Targets (it replaces line above)

³ If configuration file ends at this point and RDS plug is installed, a Warning message is displayed, as Dataset has not been defined. If RDS plug is not present but further data have been entered (up to one of the following End Point), these Data will be discarded.


```

AF_1= {87.6 , 87.7 , ... , 107.9 , List_End }, { ... }, { ... } , ...
....
....
AF_64={87.6 , 87.7 , ... , 107.9 , List_End }, { ... }, { ... } , ...

```

[END_ALTERNATIVE_FREQUENCIES]

[RADIOTEXT]⁹

```

; -----A/B-Loops-Text-(Max 64 chars)--

RADIOTEXT_0= OFF, 00, "RADIOTEXT MESSAGE STRING MAX 64 CHARS"
....
....
RADIOTEXT_15= OFF, 00, "RADIOTEXT MESSAGE STRING MAX 64 CHARS"

```

[END_RADIOTEXT]

[PIN_PTY]

```

; <Day>   = { Today , 1 , ... , 31 }
; <Hour>   = { 0 , ... , 23 }
; <Min>    = { 1 , ... , 59 }
; <ProgType>= { NO_PROGRAMME_TYPE , NEWS , CURRENT_AFFAIRS , INFORMATION , SPORT ,
                EDUCATION , DRAMA , CULTURE , SCIENCE , VARIED , POP_MUSIC ,
                ROCK_MUSIC , EASY_LISTENING_MUSIC , LIGHT_CLASSICAL ,
                SERIOUS_CLASSICAL , OTHER_MUSIC , WEATHER , FINANCE , CHILDRENS_PROGS ,
                SOCIAL_AFFAIRS , RELIGION , PHONE_IN , TRAVEL , LEISURE_&_HOBBY , JAZZ_MUSIC
, COUNTRY_MUSIC , NATIONAL_MUSIC , OLDIES_MUSIC , FOLK_MUSIC , DOCUMENTARY ,
ALARM_TEST , ALARM }
; "PTYN MSG" Max 8 characters.10

; -----Day-----Hour-----Min-----Pty-----PTYN---

PIN_PTY_0= <Day> , <Hour> , <Min> , <ProgType> , "PTYN MSG"
....
....
PIN_PTY_31= <Day> , <Hour> , <Min> , <ProgType> , "PTYN MSG"

```

[END_PIN_PTY]

[PROGRAM_SERVICE_NAMES]¹¹

```

DEFAULT_PS_END={ 0 , .. , 59 }

; -----PsName-----Speed-----

PSNAME_0= "PsName00" , { Stopped , Slowest , Slow , Normal , Fast , Fastest}
....
....
PSNAME_59= "PsName00" , { Stopped , Slowest , Slow , Normal , Fast , Fastest}

```

[END_PROGRAM_SERVICE_NAMES]

[PROGRAM_SERVICE_SCROLLING]¹²

⁹ Each text in inverted commas exceeding 64 characters, will be truncated and a warning message will be generated. You may enter up to 16 messages. A/B flag and loops are explained in UECF Standard SPB 490 rev 6.02 pag. 32

¹⁰ PTYN exceeding 8 characters will be truncated and a warning message will be generated. You may enter up to 32 Pin_PTY items.

¹¹ PsName messages exceeding 8 characters will be truncated and a warning message will be generated. You may enter up to 32 PsName items.

¹² PsScrolling messages exceeding 32 characters will be truncated and a warning message will be generated. You may enter up to 4 messages.

```

; -----PsScrolling_Name-----Speed-----

PS_SCROLL_0="Ps Scrolling Message", { Stopped , Slowest , Slow , Normal , Fast , Fastest}
....
....
PS_SCROLL_3="Ps Scrolling Message", { Stopped , Slowest , Slow , Normal , Fast , Fastest}

[END_PROGRAM_SERVICE_SCROLLING]

[EVENT_SCHEDULER]13

;<Type>   = { None, PS , PTY/PIN , PS_SCR }
;<Start>   = { 0 , ... , 59 }
;<End>     = { 1 , ... , 59 }

;<Min>     = { 0 , ... , 59 , 0-29 , 30-59, 0-14 , 15-29 ,
              30-44 , 45-59 , 0-9 ,10-19 , 20-29 , 30-39 , 40-49 ,
              50-59 , All , *0 , *1 , *2 , *3 , *4 , *5 , *6 , *7 ,
              *8 , *9 , *0-*4 , *5-*9 , *0-*1 , *1-*2 , *2-*3 , *3-*4 ,
              *4-*5 , *5-*6 , *6-*7 , *7-*8 , *8-*9 , *9-*0 , 00-04 , 05-09 ,
              10-14 , 15-19 , 20-24 , 25-29 , 30-34 , 35-39 , 40-44 , 45-49 ,
              50-54 , 55-59 , Even , Odd }

;<Day>     = { 1 , ... , 31 , 1-7 , 1-14 , 1-22 , 8-14 , 8-22 , 8-31 , 15-22 , 15-31 ,
              23-31 , 20-31 , 20-27 , 28-31 , ALL }

;<Month>    = { Jan , Feb , Mar , Apr , May , Jul , Aug , Sep , Oct , Nov , Dec , None,
              ALL }
;<Year>     = { 1 , ... , 99 , None , All }
;<Mo>...<Su>= { Off, On}
;<Act>      = { Enabled , Disabled }

; -----Type--Start--End--Hour--Min----Day-----Month---Year--[Mon-----Sun]--Activate

EVENT_1 = <Type>,<Start>,<End>,<Min>,<Day>,<Month>,<Year>,<Mo>,<Tu>,<We>,<Th>,<Fr>,<Sa>,<Su>,<Act>
....
....
EVENT_64= <Type>,<Start>,<End>,<Min>,<Day>,<Month>,<Year>,<Mo>,<Tu>,<We>,<Th>,<Fr>,<Sa>,<Su>,<Act>

[END_EVENT_SCHEDULER]

[ENHANCE_OTHER_NETWORK_1] ; Start of cmd group for Eon 1

[EON_BASIC_SERVICES]14

EON_PSNAME="NETWRK01" ; up to 8 chars
EON_PROGRAM_IDENTIFICATION=0000 ; 16 Bits (4 Digits) Exadecimal Code
EON_PROGRAM_TYPE= { NO_PROGRAMME_TYPE , NEWS , CURRENT_AFFAIRS , INFORMATION , SPORT ,
                    EDUCATION , DRAMA , CULTURE , SCIENCE , VARIED , POP_MUSIC ,
                    ROCK_MUSIC , EASY_LISTENING_MUSIC , LIGHT_CLASSICAL ,
                    SERIOUS_CLASSICAL , OTHER_MUSIC ,
                    WEATHER , FINANCE , CHILDRENS_PROGS , SOCIAL_AFFAIRS , RELIGION ,
                    PHONE_IN , TRAVEL , LEISURE_&_HOBBY , JAZZ_MUSIC , COUNTRY_MUSIC ,
                    NATIONAL_MUSIC , OLDIES_MUSIC , FOLK_MUSIC , DOCUMENTARY ,
                    ALARM_TEST , ALARM }

EON_TRAFFIC_PROGRAM={ Enabled , Disabled }
EON_TRAFFIC_ANNOUNCEMENT={ Disabled , Enabled , Positive_Input_1 , Positive_Input_2 ,
                          Positive_Input_3 , Positive_Input_4 , Positive_Input_5 , Negative_Input_1 ,
Negative_Input_2 , Negative_Input_3 , Negative_Input_4 , Negative_Input_5 , Positive_Input_Pulse ,
                          Negative_Input_Pulse }

EON_PIN_DAY= { 1 , ... , 31 }

```

¹³ You may enter up to 64 events.

¹⁴ Eon_PsName messages exceeding 8 characters will be truncated and a warning message will be generated.

EON_PIN_HOUR={ 0 , ... , 23 }
EON_PIN_MINUTE={ 0 , ... , 59 }
LINK_SET_NUMBER=000 ; 12 Bits (3 Digits) Exadecimal Code
LINK_ACTUATOR={ Off , On }
EXTENDED_GENERIC_LINK={ Off , On }
INTERNATIONAL_LINK_SET={ Off , On }

[END_EON_BASIC_SERVICES]

[EON_AF]

METHOD={ Method_A , Frequency_Map_1 , .. , Frequency_Map_4 }
EON_AF=={ 87.6 , 87.7 , .. , 107.9 , List_End }, { ... } , { ... } , ...

[END_EON_AF]

[END_ENHANCE_OTHER_NETWORK_1]

.....

[END_ENHANCE_OTHER_NETWORK_10]

[END_DATASET_1] ☐ End Point(2)

[START_DATASET_2]

.....

[END_DATASET_2] ☐ End Point(3)

[START_DATASET_3]

.....

[END_DATASET_3] ☐ End Point(4)

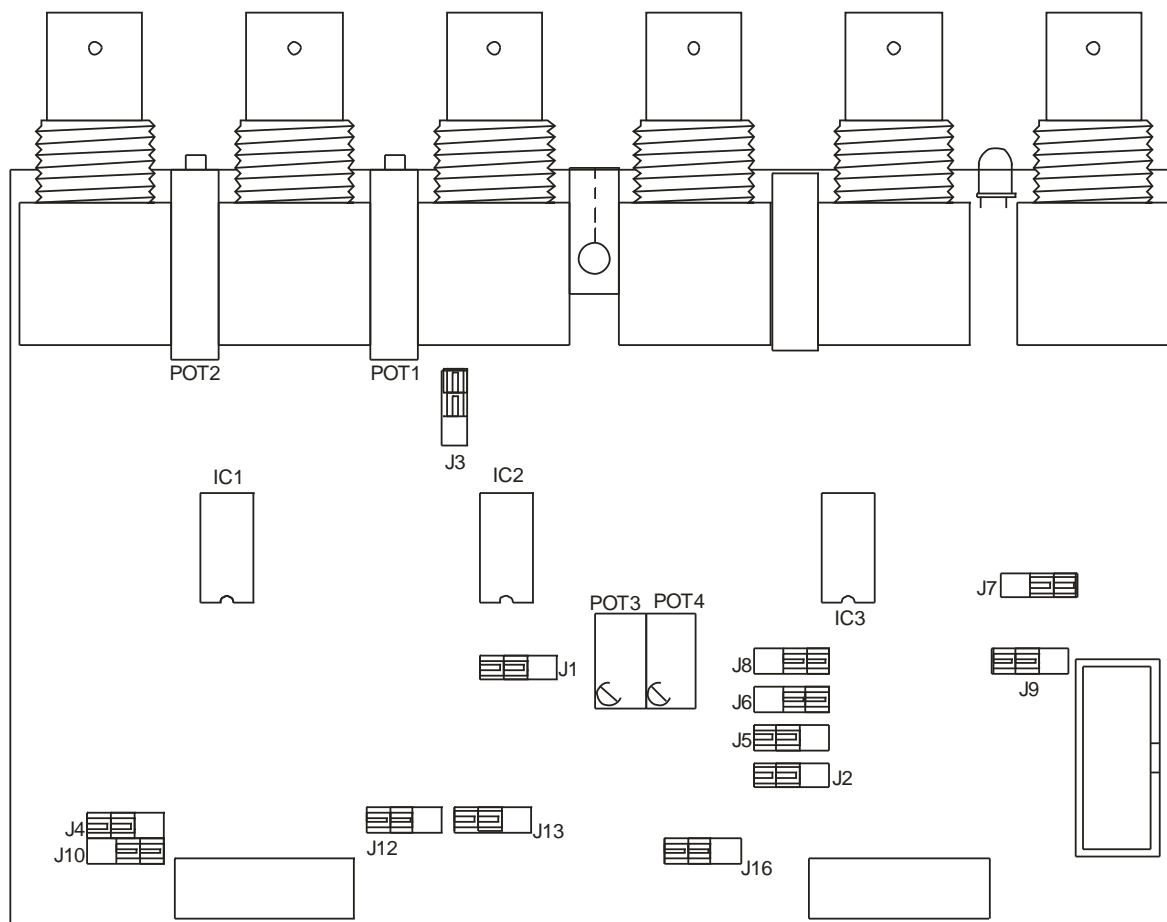
[EMERGENCY_DATASET_4]

.....

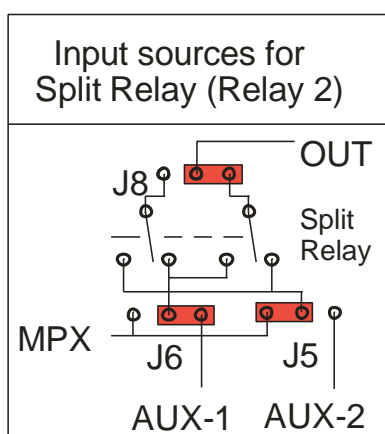
[END_EMERGENCY_DATASET_6] ☐ End Point(5)

37 APPENDIX C – MPX BOARD JUMPER SETTINGS

The following picture shows **factory jumper position** on MPX output card.



37.1 JUMPERS LEGEND



J9 Split Relay Driver	
	GPI-2
	uP-GPI2

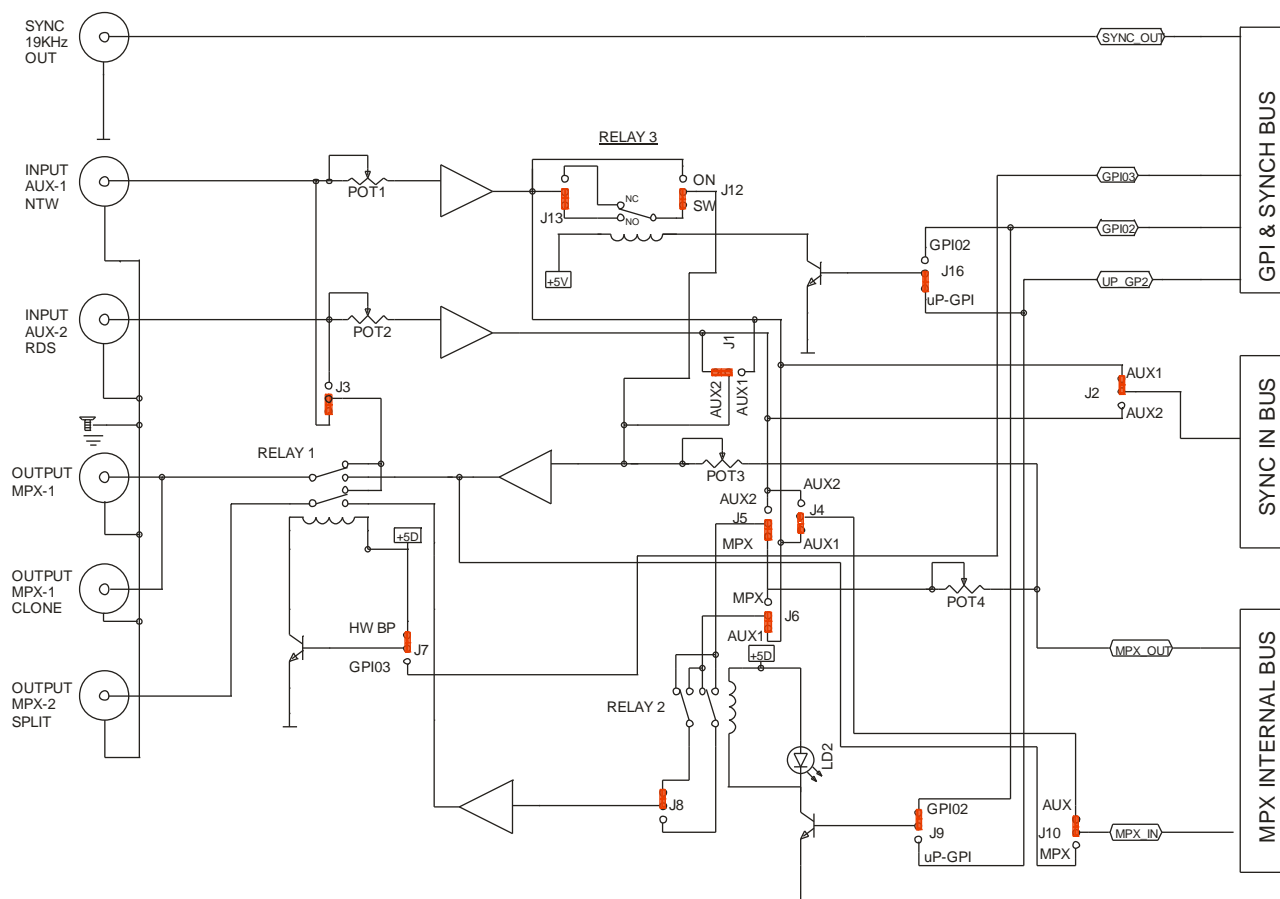
Input source for MPX&RDS Decoder	
J4	AUX1
J4	AUX2
J10	AUX
J10	MPXout

J2 Synch Input	
	AUX1
	AUX2

J7 Bypass Relay Driver	
	GPI-3
	Power ON

J3 Hw Bypass Source	
	AUX1
	AUX2

37.2 MPX CARD – BLOCK DIAGRAM with DEFAULT JUMPER POSITIONS



NAME	DESCRIPTION	FACTORY PRESET	NOTES / COMMENTS
J1	Selects AUX1-AUX2 for summing onto MPX – 1 output	AUX2	AUX2 input is summed to MPX output
J2	Selects whether Synch is locked to an external MPX source applied at Aux-1 or Aux-2 input	AUX1	AUX1 input is selected as input to synchronize Tiger Shark RDS coder to an external MPX source
J3	Selects AUX1-AUX2 as source for Hardware Bypass	AUX1	In the event of hardware bypass, AUX-1 is routed to MPX-1 output. See also J7
J4	Selects AUX1-AUX2 or the MPX-1 output as source for MPX&RDS built-in decoder	AUX1	AUX-1 is the source for MPX&RDS built-in decoder. See also J10.
J5	Selects AUX2 or MPX for the MPX-2 (Split) output. See RELAY 2	AUX2	See RELAY 2
J6	Selects AUX1 or MPX for the MPX-2 (Split) output. See RELAY 2	AUX1	See RELAY 2
J7	Determines whether the Relay RE1 acts as Hardware ByPass in the event power failure or it is driven by Logical Input GP-IN 03	HardWare ByPass	In the event power failure, AUX-1 input is routed to MPX-1 output.
J8	Selects AUX1-MPX-AUX2 for the MPX-2 output (Split) See RELAY 2	MPX	MPX-2 output repeats by default AUX-1 input (NeTWork) and, in the event of GP-IN 02 activation, switch to AUX-2 input (see J9).
J9	Selects whether RELAY 2 is driven by microprocessor (uP-GPI) or external Logic Input GPIN-02	GPIN-02	external Logic Input GPIN-02 activates Split mode
J10	Selects AUX-MPX as source for MPX&RDS Decoder	AUX	AUX-1 is the source for MPX&RDS Decoder. See also J4
J12	Determines whether AUX-1 is summed to MPX-1 output all time long or in a switched mode.	SWITCHED	AUX-1 input is <u>not</u> summed to MPX-1 output all time long

J13	Selects NO (Normally Open) or NC (Normally Closed) contacts on RELAY R3	NO	
J16	Selects whether RELAY 3 is driven by a microprocessor command (uP-GPI) or an external logic input (GPI02)	uP_GPI	RELAY 3 is driven by Tiger Shark microprocessor

For Example:

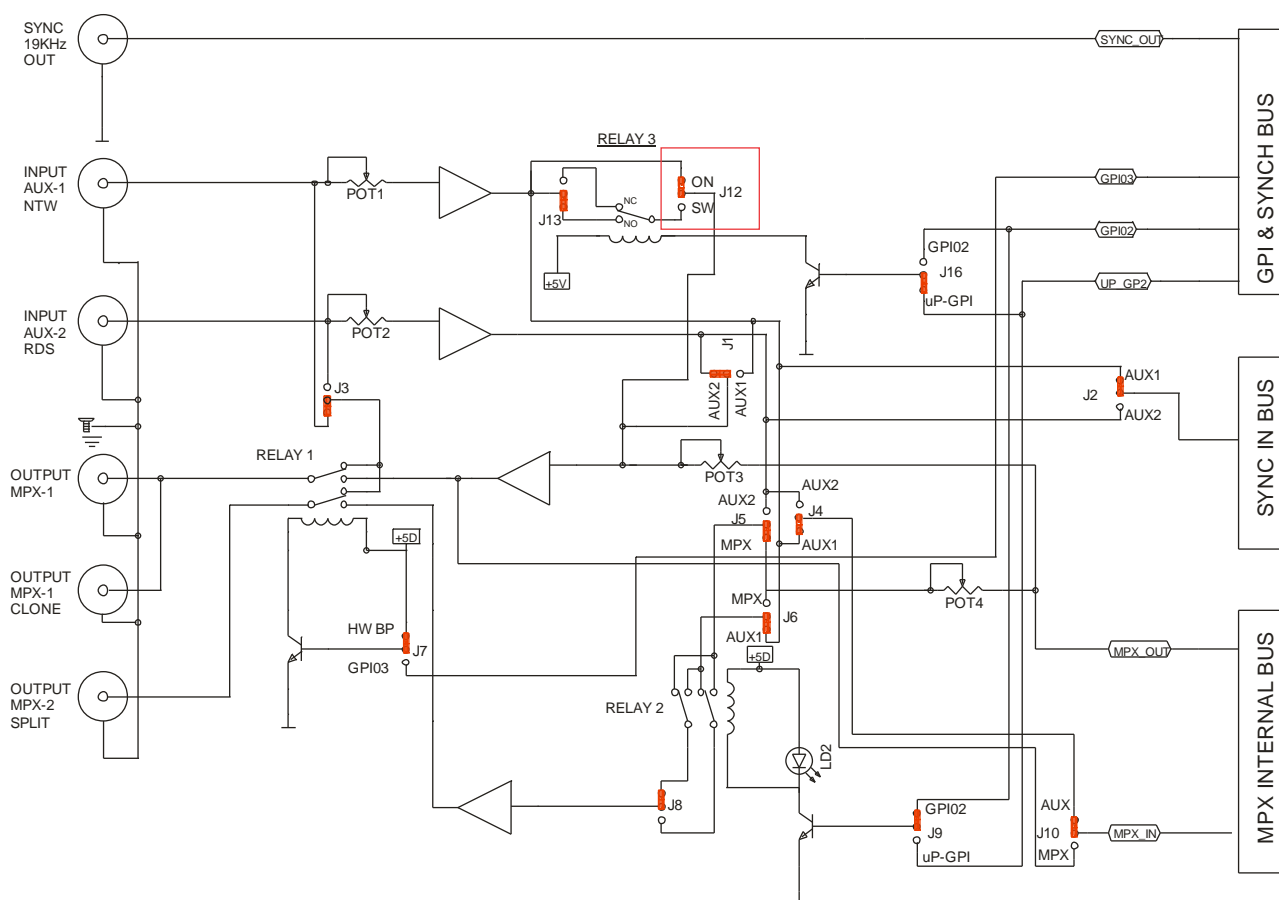
Using this configuration in OUT1

- In Normal Operativity :MPX + RDS + AUX2
- In Switch mode: AUX1 + AUX2

Using this configuration in OUT2

- In Normal Operativity :MPX + RDS
- In Switch mode: AUX1

11.3 MPX CARD – BLOCK DIAGRAM with DEFAULT JUMPER POSITIONS ONLY FOR TIGERSHARK-R (TIGERSHARK RDS CODER)



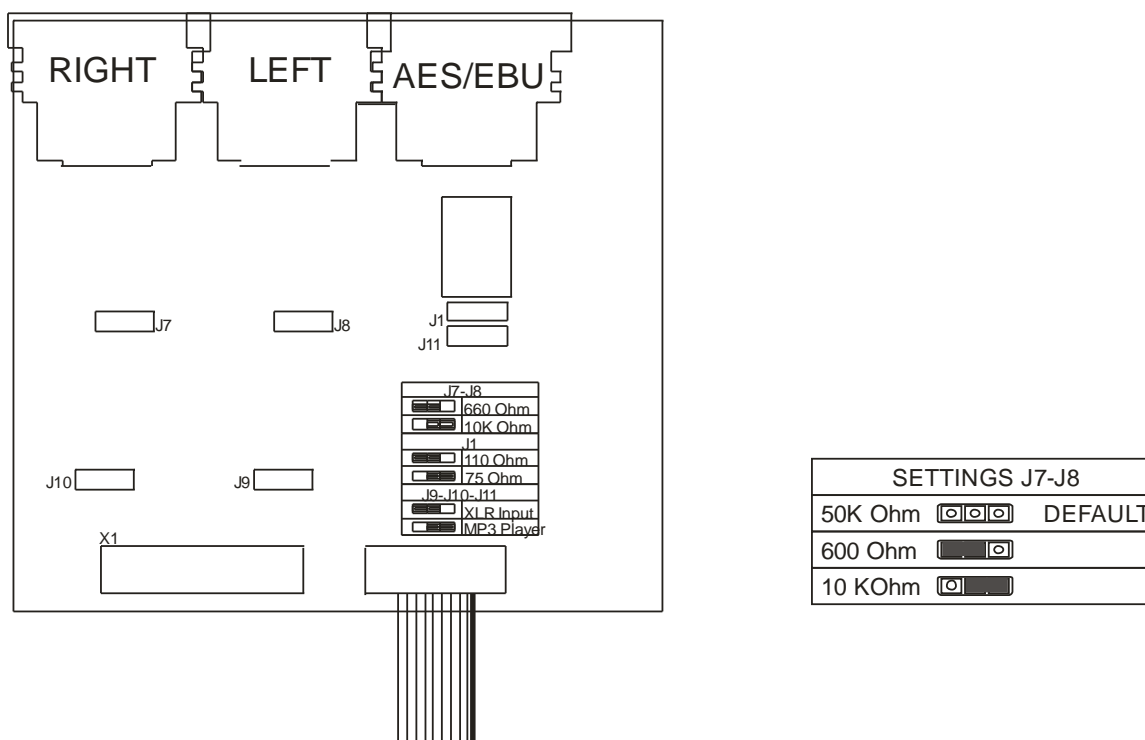
THE MAIN DIFFERENCE IS IN J12.

In this situation in:

OUT1 = RDS+AUX1+AUX2

OUT2 = RDS

38 APPENDIX D – AUDIO INPUT CARD SETTINGS



J7 – J8 set the Analog input impedance

J1 sets the Digital input impedance

J9 – J10 – J11 enable MP3 Player (whenever fitted) and replace the analog input or the digital input.

39 APPENDIX E - FIRMWARE UPGRADE PROCEDURE

When required, the firmware can be updated with the latest available version. In order to upgrade the processor, please follow this procedure:

FW Upgrade can be performed on Windows environment, Windows XP and Windows 7 are supported.



After an initialization of the device (firmware upgrade), all user presets and adjustments may be erased and/or overwritten by the new factory setup! Please save the current configuration by means of the Configuration Editor tool prior to proceeding with the firmware upgrade.



As general rules, when upgrading the firmware, do not forget to install the new associated software version of PC remote control. There is a direct correspondence between the firmware and software versions.

For example, the FW rel. 5.8 LITE inside the Tiger Shark requires the Software version 5.8 LITE installed on the unit and vice versa.

But starting from Firmware rel 5.8.0 it is also possible to use software rel higher with FW rel until 5.8.0. Well, a FW Rel 5.8.0 works perfectly with a SW rel 5.9.4

45.5.1 MAKING THE UNIT READY FOR UPGRADING

- A) Shut off the unit
- B) Set the switch on the front panel to **ON** (right position) (see highlighted switch in the picture).



- C) Connect the Tiger Shark front or back **SERIAL** port **1** to that of the Host PC. Please insert (or remove) the serial connector only with processor turned off. A regular (i.e. not crossed) cable is required. It is also possible to use a USB-COM converter as Manhattan PL-2303 that converts the USB into a Standard port com. Some new laptop and desktop pc's are not provided with COM ports.

- D) Turn the unit on.
- E) Make sure Emergency Led on the front panel blinks (front panel display will be empty)

45.5.2 PC OPERATION

- F) Close all opened applications on the PC. !! Such as Outlook, Skype or Internet options. During upgrade the PC must be unused by other operation or task or human control.

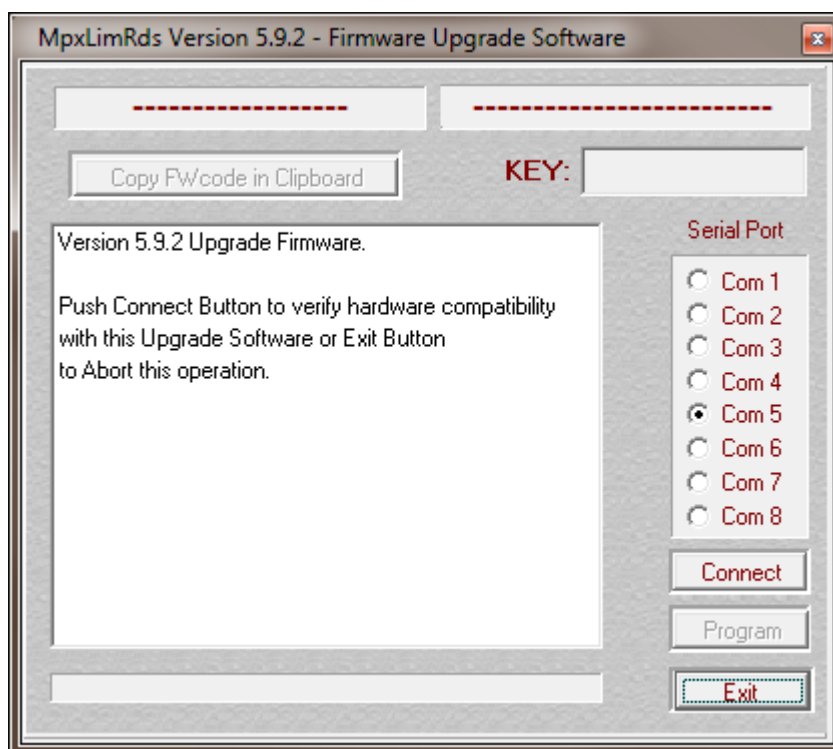
- G) Access the **Fw UpGrades** inside the CD provided with the upgrading kit.

- H) Double click the **file associated to the desired upgrade:**

a. **TigerShark_V592_Full_Upgrade**

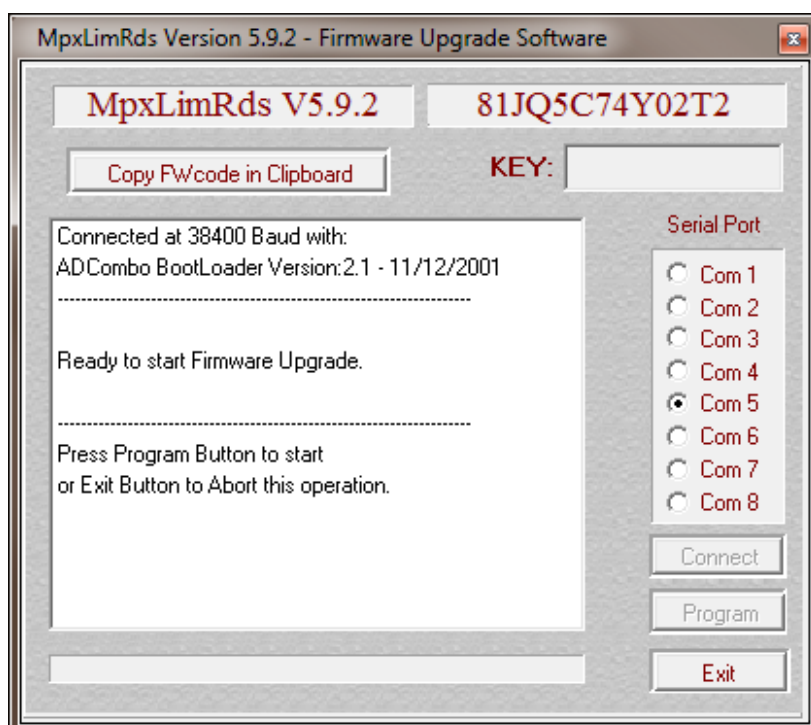
NB: to make sure of current version of Yr Tiger Shark, please check the Firmware Version page from the System Information menu.

The following screen will be displayed:



I) Select the **PC serial port** on the screen

J) Click **Connect** button.

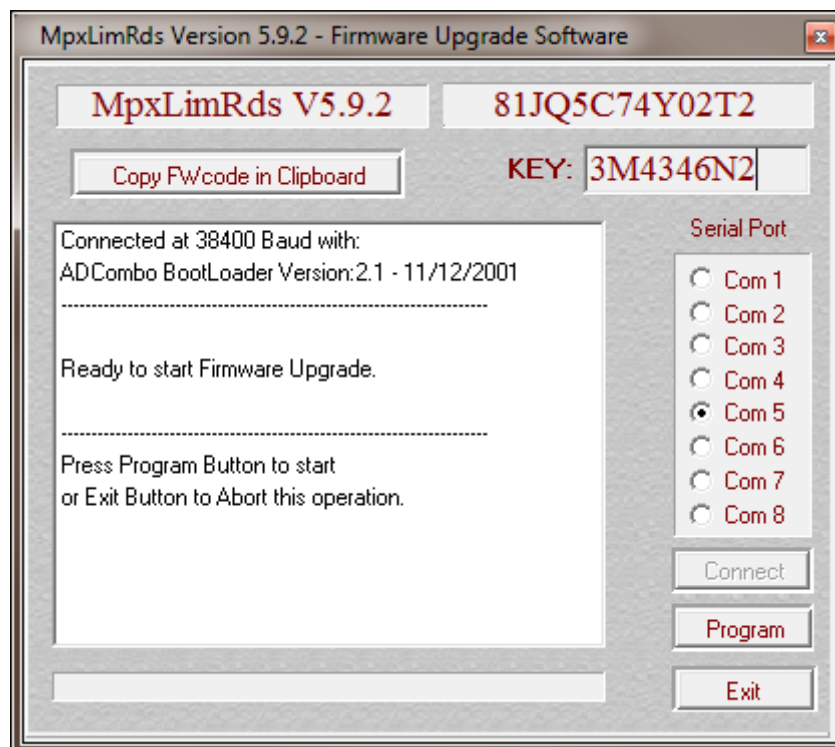


K) Make sure the Identification is correctly done (Ready to start Firmware Upgrade message + firmware code displayed in the right field)

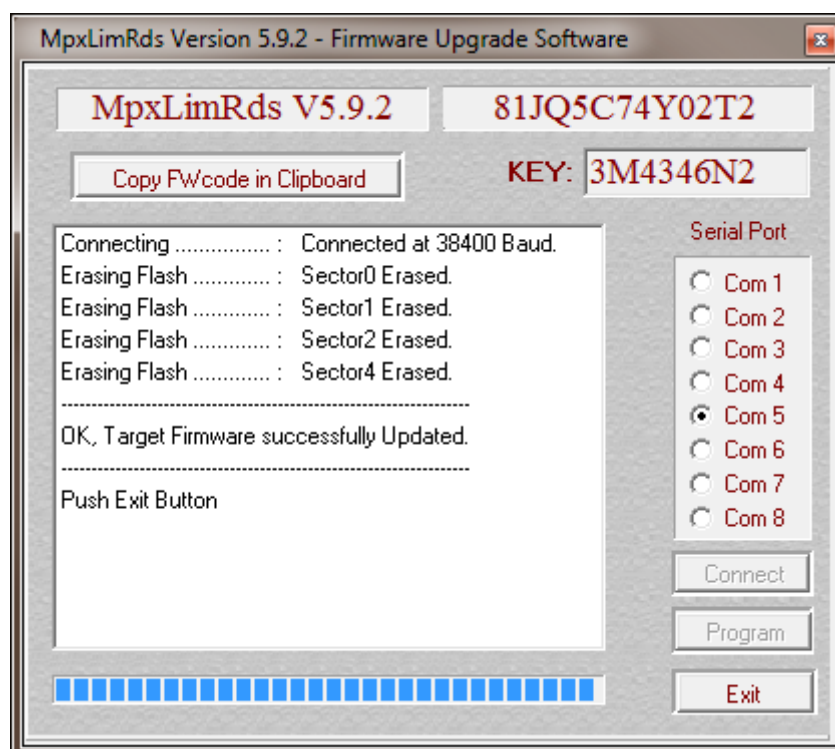
L) Provide to Axel Technology the firmware code, so we can provide the KEY to upgrade the Tiger Shark. The FW code is in the left side of the upgrader software, in the picture below: 81JQ5C74Y02T2

M) Send this code via email or phone to Axel Technology and we provide immediately the KEY code, that allows the unit to be updated. Is it also possible to COPY FW code in CLIPBOARD and then email it to support@axeltechnology.com

N) Insert the provided Key code into the box KEY. In this case the code is 3M4346N2 (THIS IS ONLY AN EXAMPLE, DON'T USE THIS CODE BUT ASK TO AXEL TECHNOLOGY BEFORE!!). Once the code has been inserted the PROGRAM button appears.



O) Press PROGRAM and leave the software run, don't touch the PC until the upgrading has been finished.



- P)** When the upgrade has been done, press EXIT. It is preferable to don't touch or execute other operation into the upgrading PC while the upgrade is in progress. Sometimes the software seems to be freezed, but it is still working. Don't shut down the PC or disconnect the COM cable until the Tiger Shark Display comes back with TIME and WARNING light turns off.
- Q)** Shut down the Tiger Shark, move the upgrading switch back to OFF and restart the Tiger Shark.

40 APPENDIX F – SIDECCHAIN / LOOPTHROUGH CONN. MODES

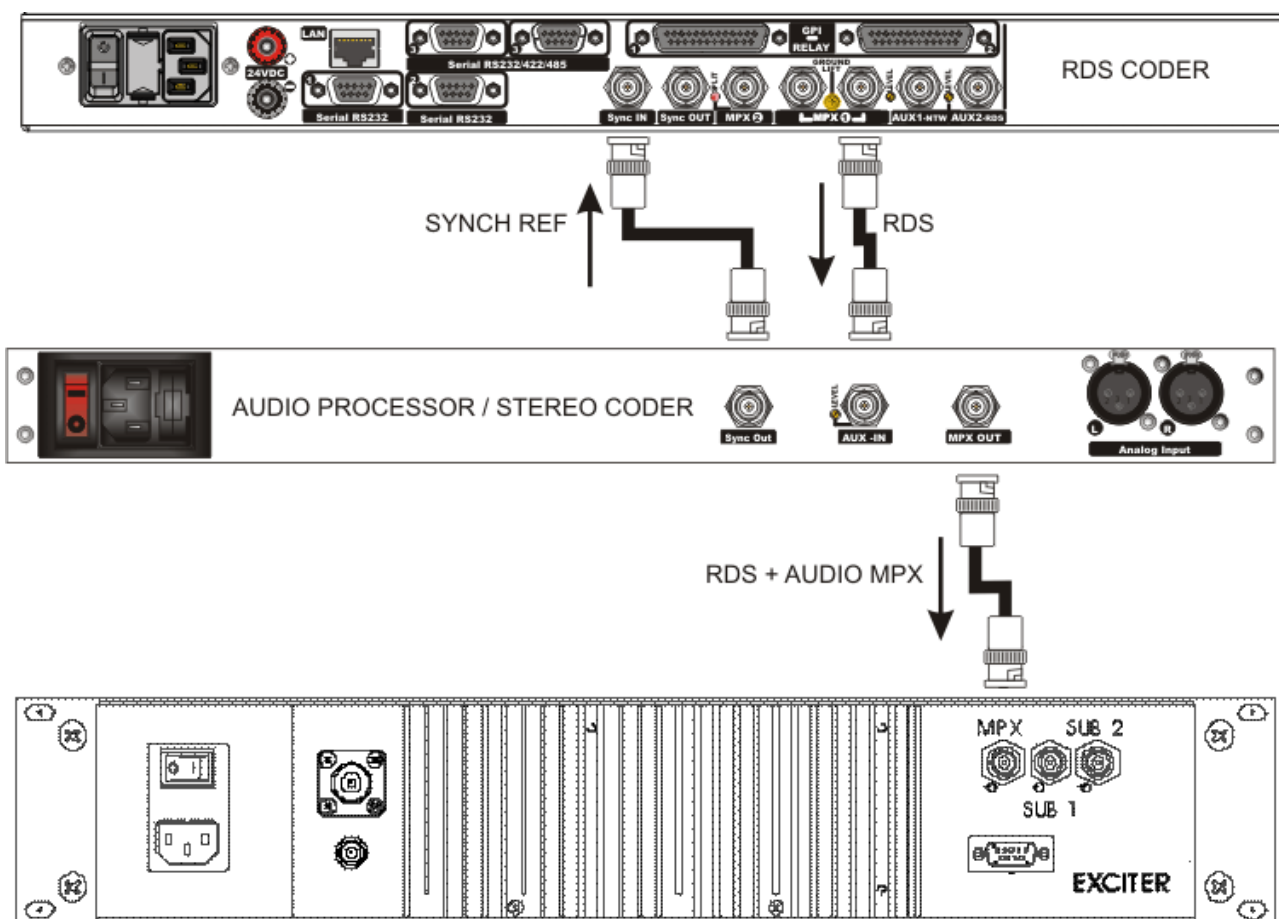
The RDS encoder can be connected to the exciter and to the stereo generator / audio processor in two different modes: Sidechain and Loop-Through. The first one is highly recommended, as the composite / MPX is better preserved and program transmission will be not interrupted even in the event of encoder failure.

40.1 SIDECCHAIN MODE (SUGGESTED)

Depending on the availability of a SYNC reference signal, the following cases are possible: **NB** Using the 19 kHz clock from the stereo generator makes it much easier to phase lock the RDS signal to the pilot frequency. This is extremely helpful in eliminating intermodulation components that might exist between the pilot and RDS signal.

40.1.1 Sidechain - SYNC mode

If the stereo coder features a dedicated **TTL-level 19 kHz** square wave output, You may connect that output to the SyncIN input connector of the RDS encoder. The encoder RDS output is then routed to the SCA (wideband) input of stereo coder, while the composite / MPX signal including RDS data is directly provided to the FM Exciter. As the composite / MPX is not routed through the RDS encoder, its integrity is preserved and program transmission will be not interrupted even in the event of encoder failure. **External Synch MUST be enabled from the control panel menu or from the Pc control software**

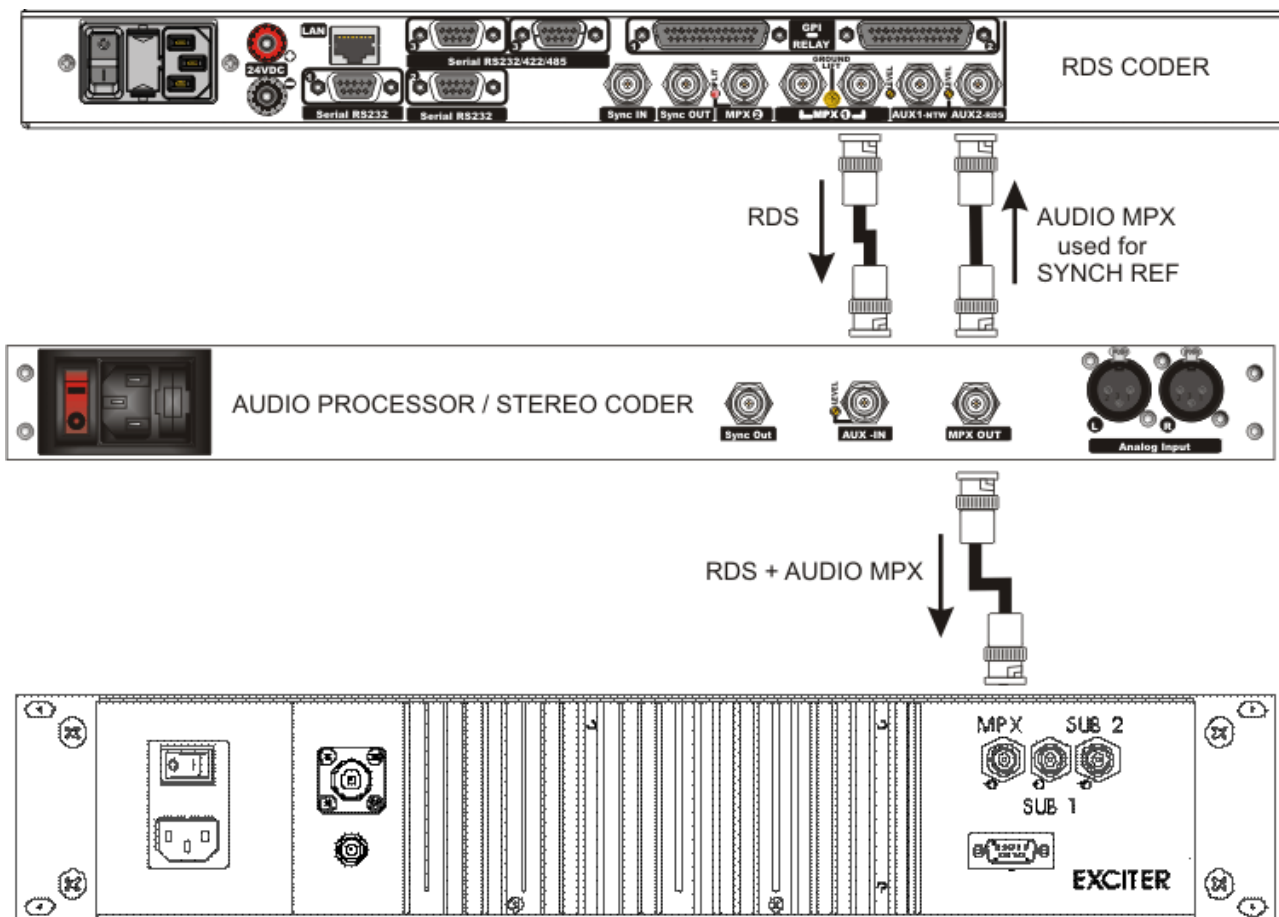


Correct synchronization to external 19 KHz TTL reference signal will cause Warning LED on the front panel to light. TTL suitable levels: '0' state < 0.5 V; '1' state > 2 V . An automatic switchover to internal oscillator in case of absence or low quality of external reference signal is performed.

40.1.2 Sidechain – MPX mode

In the event the Sync reference is not available on the Stereo Coder / audio processor, the RDS encoder simply monitors the MPX output of the stereo generator to derive timing information from the 19 KHz pilot. By means of a BNC 'T' adapter, MPX output of stereo coder is thus provided to both RDS encoder and exciter.

The encoder RDS output is routed to the SCA (wideband) input of stereo coder, while the composite / MPX signal including RDS data is directly provided at the FM Exciter input.



External Sync MUST be enabled from the control panel menu or from the Pc control software

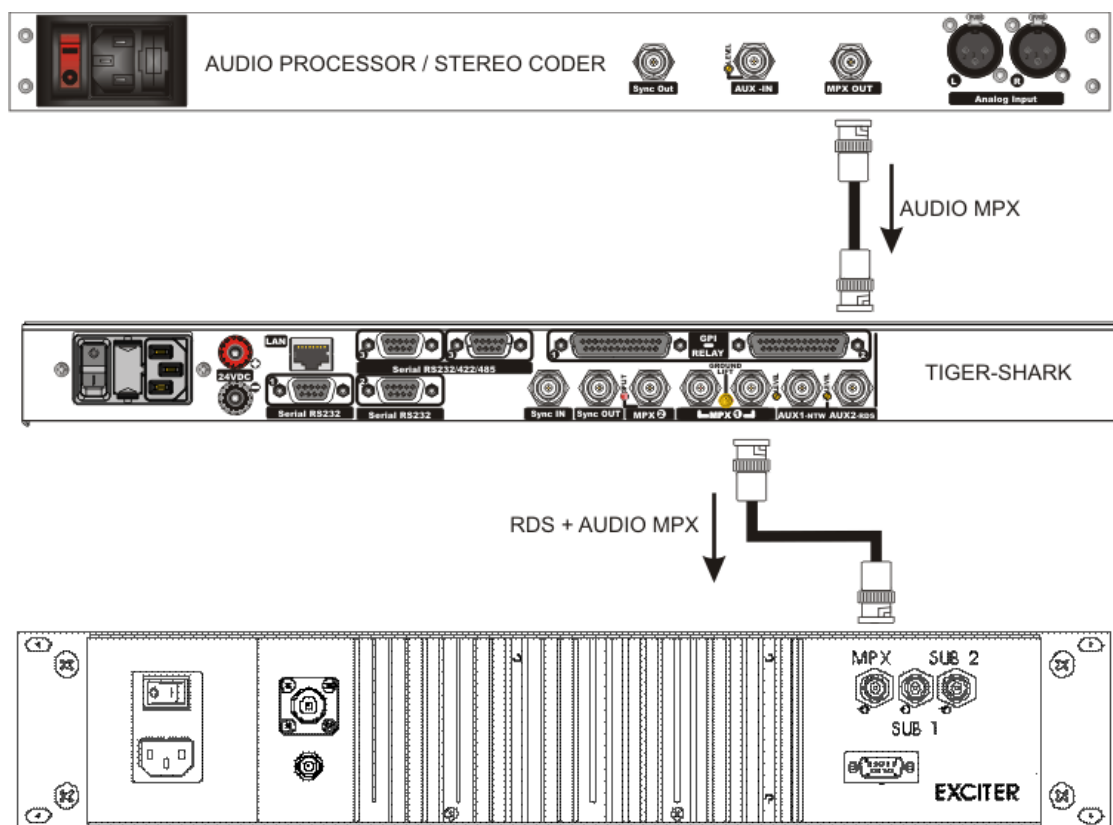


*MPX pilot suitable level: minimum 100 mVpp, max 1,9 Vpp
19 kHz Sync tolerance : +/- 5Hz to lock; +/- 15 Hz to unlock
An automatic switchover to internal oscillator in case of absence or low quality of external reference signal is performed.*

The level of the injected signal may be adjusted by means of the trimmer next to the corresponding BNC connector (no software control is provided for this purpose). This trimmer is factory preset for a gain of 0 dB.

Correct synchronization will cause MPX LED ON in the front panel.

40.2 LOOP-THROUGH MODE



In the loop-through mode, the output of the stereo generator is directly cabled at the AUX 1 input of RDS encoder. The RDS output of the encoder will be then connected to the normal composite/Mpx input of the FM exciter.

As noticed, this configuration is NOT recommended, as the composite / MPX is passing through the RDS encoder and program transmission will be interrupted in the event of RDS encoder failure. This configuration doesn't need to alter the encoder factory preset. RDS subcarrier phase will be locked either to external FM stereo MPX signal. Correct synchronization will cause MPX LED ON in the front panel.

External Synch MUST be enabled from the control panel menu or from the Pc control software



MPX pilot suitable level: minimum 100 mVpp, max 1,9 Vpp

19 kHz Sync tolerance : +/- 5Hz to lock; +/- 15 Hz to unlock

An automatic switchover to internal oscillator in case of absence or low quality of external reference signal is performed.

The level of the injected signal may be adjusted by means of the trimmer next to the corresponding BNC connector (no software control is provided for this purpose). This trimmer is factory preset for a gain of 0 dB (unity gain).

41 APPENDIX G – DESCRIPTION OF ASCII COMMANDS

41.1 OVERVIEW

Tiger Shark can acquire text commands through its serial interface (serial3-Extended Port) by activating the 'ASCII Commands' mode from the software or via web browser.

Tiger Shark accepts commands also via TCP/IP connection (port 15000). The session will be closed automatically after a 3 minutes inactivity period. The ASCII commands string can be accepted also via SNMP sending to OID the "Ascii Stringr" string (see MIB for further details).

41.2 SYNTAX

Each command starts with a unique keyword that identifies it, a series of comma separators , for the parameters of the keyword and, if the command requires it, a quoted (ascii code: 34) string of chars.

- Blanks are allowed.
- Keywords and parameters are case-insensitive.
- Parameters should follow the sending order as described forward.
- The command line should be closed by an ENTER (ascii code: 13) type.
- After each command, Tiger Shark returns an acknowledgement code or an error code, no matter if sent via serial port or snmp.

41.3 RADIO TEXT (RT)

keyword:	RADIOTEXT
parameters:	<string of chars (max 64)>
answer:	RT OK

Example:

RADIOTEXT, "text of max 64 chars" ↵

41.4 PS SCROLLING

keyword:	PSScroll
parameters:	<RIP>,< CHARS>,< SPEED>,<string max 64 chars>
answer:	PS OK

RIP:	{ NORIP, 1_RIP, 2_RIP, 3_RIP, 4_RIP, 5_RIP, 6_RIP, 7_RIP }
CHARS:	{ 1CHAR, 2CHAR, 3CHAR, 4CHAR }
SPEED:	{ SLOWER, NORMAL, FASTER }

Example 1:

PsScroll with no repetitions, scroll of 2 chars per refresh, slow refresh speed:

PSScroll, NORIP, 2CHAR, SLOWER, "text of max 64 chars" ↵

Example 2:

PsScroll with 4 repetitions, scroll of 2 chars per refresh, normal speed:

PSScroll, 4_RIP, 2CHAR, NORMAL, "text of max 64 chars" ↵

41.5 RADIO TEXT PLUS (RT+)

The RT+ service requires 3A group usage for the service record and 12A group for data transmission.

keyword:	RTPLUS
parameters:	ToggleBit, RunningBit, RTContent Type 1, Start Content Type 1, Lenght Content Type 1, RTContent Type 2, Start Content Type 2, Lenght Content Type 2,
answer:	RT+ OK

ToggleBit: Tells the receiver that the item has changed
 RunningBit: Item validity
 RTContent Type1: Content type 1
 Start Content Type1: Content type 1 start position
 Lenght Content Type1: Length (after first one character) of content type 1
 RTContent Type2: Content type 2
 Start Content Type2: Content type 2 start position
 Lenght Content Type2: Length (after first one character) of content type 2

Example:
Following RT string is sent:

I n o n d a : U p r i s i n g , M u s e - T h e R e s i s t a n c e - 2 0 0 9

0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4	4
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5			

Subsequently the RTPLUS command for ContentType 'Title' (1) and ContentType 'Artist' (4) is sent:

RTPLUS,1,1,1,8,7,4,18,3↓

Further informations on RT+ can be found on official RDS Forum document 'R08_008_3_annex p.pdf'

For further information on “How to..” set and use RT / RT+ please read the following chapter “How to Use RT / RT+ in Tiger Shark equipment”

41.6 DATASET

Select active dataset.

keyword:	DATASET
parameters:	DataSet number (1 to 6)
answer:	DS OK

Example for dataset 1:

DATASET, 1 ↵

41.7 TA / TP

Set TA / TP of current dataset.

keyword:	TATP
parameters:	TA, TP
answer:	TATP OK

Example: TA ON, TP OFF

TATP, 1, 0 ↵

Example: TA ON, TP ON

TATP, 1, 1 ↵

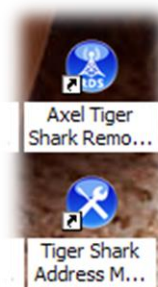
42 APPENDIX H - HOW TO USE RT / RT+ IN TIGER SHARK

Fast Guide for a fast set of Radio Text and Radio Text Plus in Tiger Shark equipment.

In order to use the RT / RT+ services in your radio station please follow these instruction, the ASCII Parser could be very usefull if you are using a dedicated software to manage your RDS/RBDS data feed information. AxelTechnology is also able to perform and provide Customized software to manage equipment via Serial (RS-232) or via Ethernet port using SNMP Protocol. This software is RDS MANAGER, feel free to ask us! The following procedure was wrote to empower the protocol usinfg Serial RS-232 Port.

Starting from release (**5.9.0.0 Tiger Shark**) it is possible to use **Parser ASCII** to feed information in RDS/RBDS. Please follow this Step-by-Stpe procedur to use this features:

1. Install the Tiger Shark Software in your PC, using Win Xp, Windows 7 or Windows 7 Professional
 - a. Insert CD in the Reader.
 - b. Launch "Setup.exe"
 - c. Follow the installshield operation (**also refer to chapter 15.0 in First Part**)
 - d. In the end you obtain 2 icons on the desktop Axel Tiger Shark Remoter and Tiger Shark Address Manager. Tiger Shark address Manager is used to set the UECP ID and TCP/IP Address. Axel Tiger Shark Remoter is used to set all the features about the encoder (like PS name, PI Code, RDS Level etc etc)
2. Launch Tiger Shark Address Manager and connect Serial Cable in your PC and SERIAL 1 in Tiger Shark
 - a. You have 2 choices: or set and use TCP/IP or use Serial Connection. In this case we use Serial Connection.
 - b. Select SERIAL upper Left side, select COM Port and Baud Rate (default: 38400bps)
 - c. Press CONNECT TO TARGET upper Right side.
 - d. After that the software became colored with data settings. This means you are connect to Tiger Shark!



BEFORE Tiger Shark Connection

AFTER Tiger Shark Connection !

3. Using RT+:

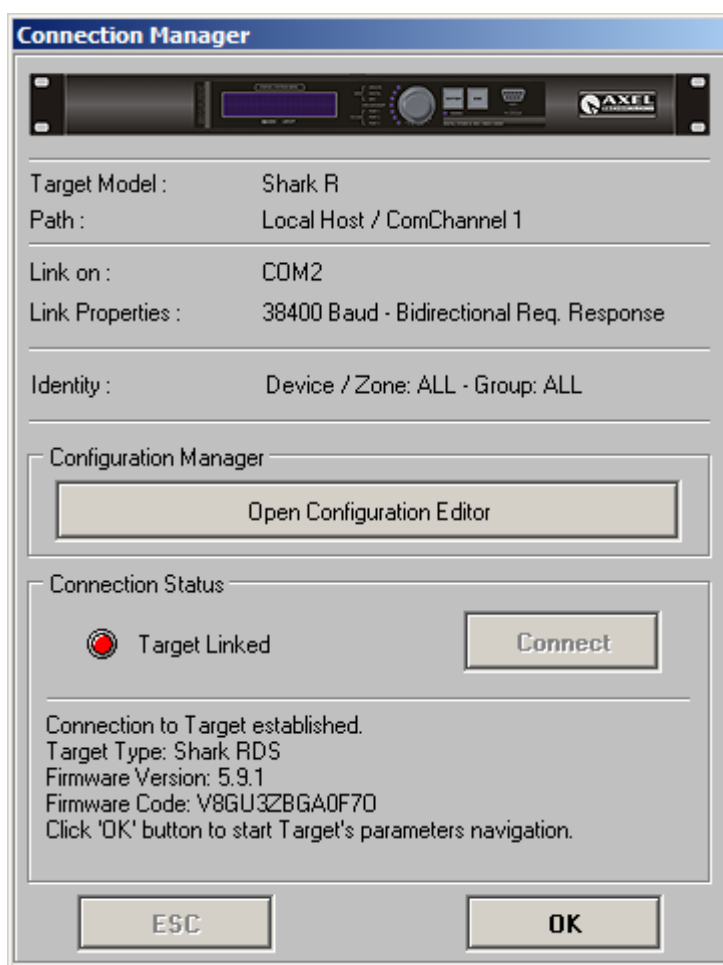
- a. In order to broadcast RT+ first of all we need to generate data group 3A and 12A in the Group sequence in Tiger Shark.

Follow the sequence:

- b. Close all programs (or only Tiger Shark Address Manager)
c. Launch Tiger Shark Remoter
d. Press OPEN PANEL



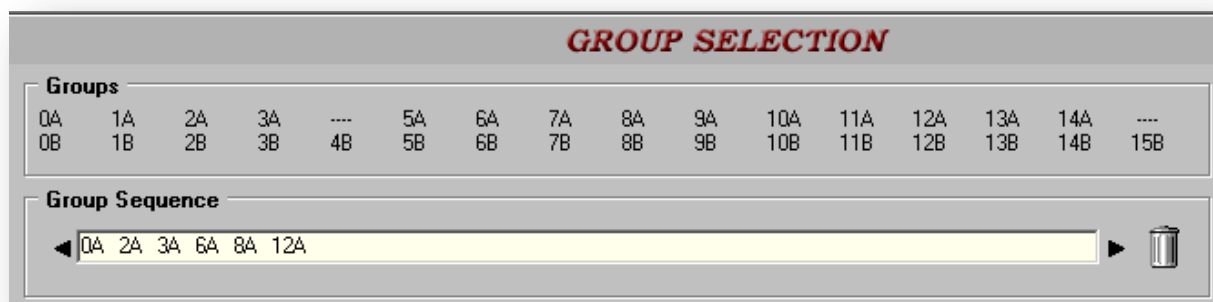
- e. (Select the Target Type) and press WORK MODE. You are using a Shark RDS, this means you are using a RDS ENCODER. Tiger Shark is also available with internal MPX StereoCoder.
f. This panel appear: if you press in ComChannel_1 you can select and Set the connection parameter (com port, serial speed..)
g. If you DOUBLE click in Shark_R_1 you open the connection Manager. This is a remind about the connection, information on the link (COM2, 38.400, BiDirectional Req Response etc etc) When you press connect you obtain the connection with the unit. A RED coloured light appears and Target Linked si showed plus all the information about the target type , the firmware release and the firmware code. Now press OK!
h. In the lower Right Side you can watch the Green Light mode Work. This means that you are connected with Tiger Shark



- i. Go in SETTINGS and set the EXTENDED PORT as "ASCII PARSER" and press OK
- j. Go in Static RDS -> GenPurpose_DS1 -> Services : here the group selection is available, so here we can set this sequence:



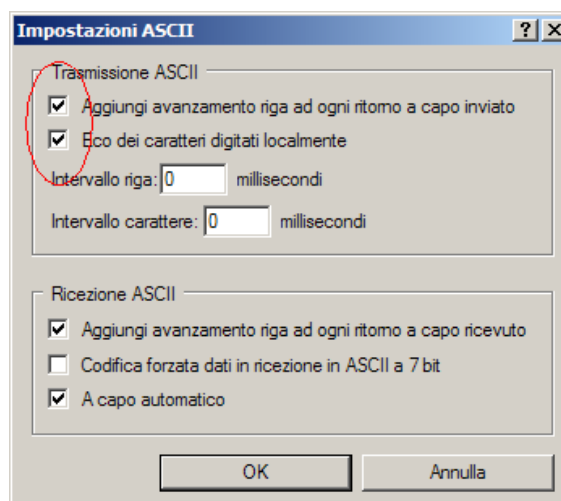
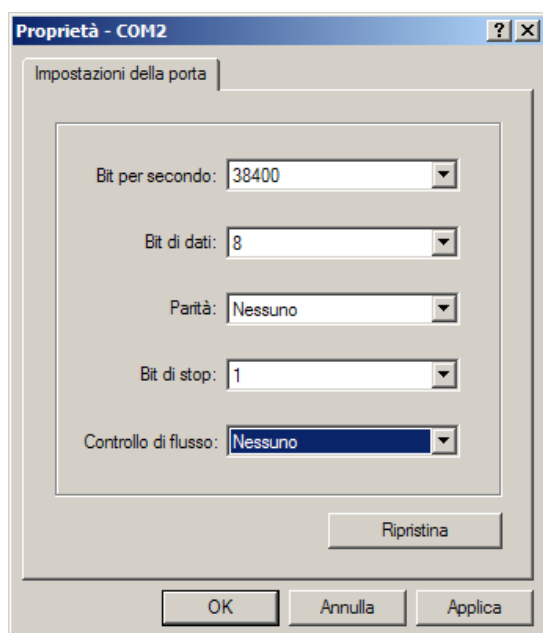
0A, 2A, 3A, 6A, 8A, 12A. Then press OK



Now You can connect Hyper terminal to SERIAL 3 in Tiger Shark.

Follow the procedure:

- k. Connect SERIAL 3 to Tiger Shark.
- l. Open Hyper Terminal in your PC.
- m. Connection name: doesn't matter!! What you want
- n. Connect To: COM PORT in your PC that are using
- o. Bit per Second: 38.400bps
- p. Databit: 8
- q. Parity: None
- r. Stop: 1
- s. StreamControl: NONE
- t. Press OK
- u. Press FILE – Propriety -> Settings -> Ascii Settings.
- v. ECHO CHARACTERS [flag] ADD ROW [flag]
- w. Press OK
- x. Now everything is ready to send via ASCII Parser data for RadioText, Radio Text +, PSScroll etc etc.
- y. In the next page some example about the connection and RT+



EXAMPLE: About Sending Data via Parser Ascii for RT, RT+, Ps Scroll, DataSet Chngem TA and TP.

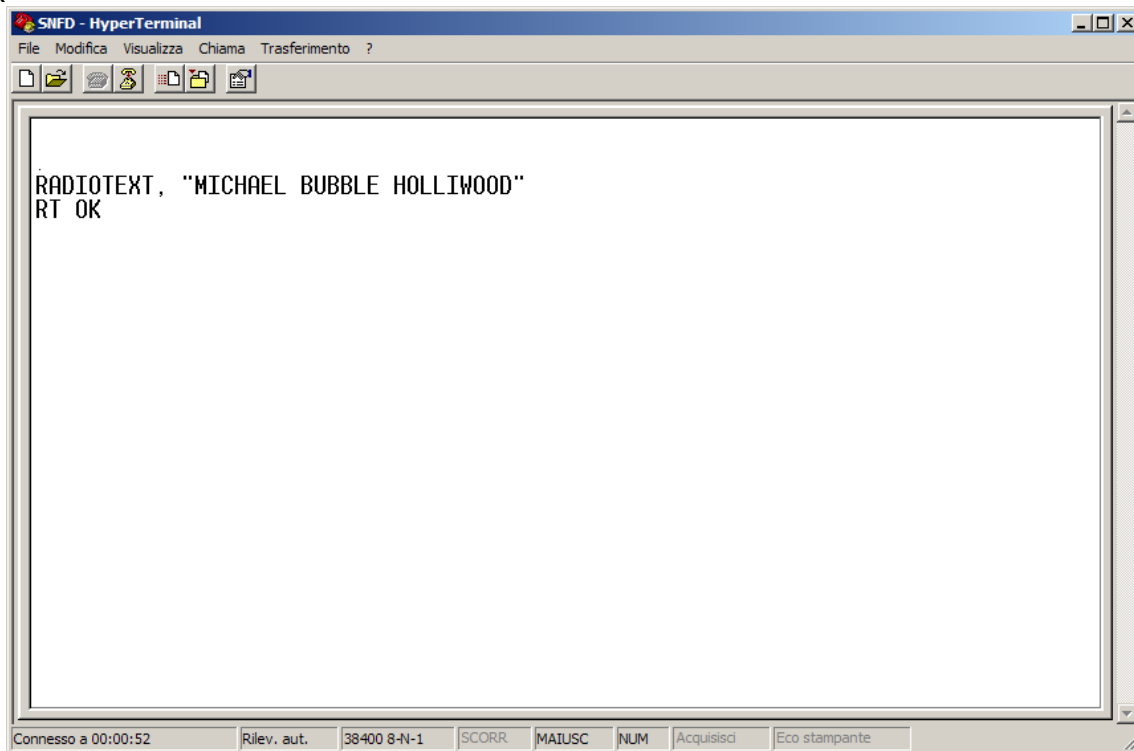
1. RADIO TEXT:

In the prompter digit

RADIOTEXT, "MICHAEL BUBBLE – HOLLIWOOD"

Tiger Shark replies

RT OK

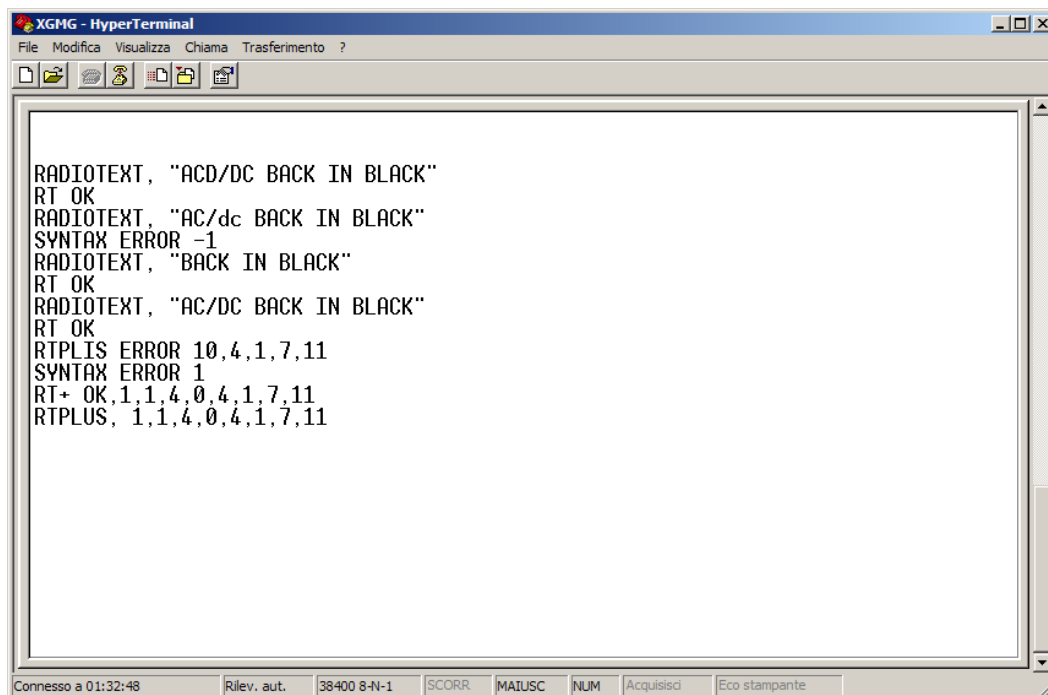


The pictures below shows what is happening to the LCD Double lines screen



How to Test the RT +:

In the user manual previous chapter I am following the Tiger Shark Protocol instructions:



```

XGMG - HyperTerminal
File Modifica Visualizza Chiama Trasferimento ?
RADIOTEXT, "ACD/DC BACK IN BLACK"
RT OK
RADIOTEXT, "AC/dc BACK IN BLACK"
SYNTAX ERROR -1
RADIOTEXT, "BACK IN BLACK"
RT OK
RADIOTEXT, "AC/DC BACK IN BLACK"
RT OK
RTPLIS ERROR 10,4,1,7,11
SYNTAX ERROR 1
RT+ OK,1,1,4,0,4,1,7,11
RTPLUS, 1,1,4,0,4,1,7,11

Connesso a 01:32:48 Rilev. aut. 38400 8-N-1 SCORR MAIUSC NUM Acquisisci Eco stampante

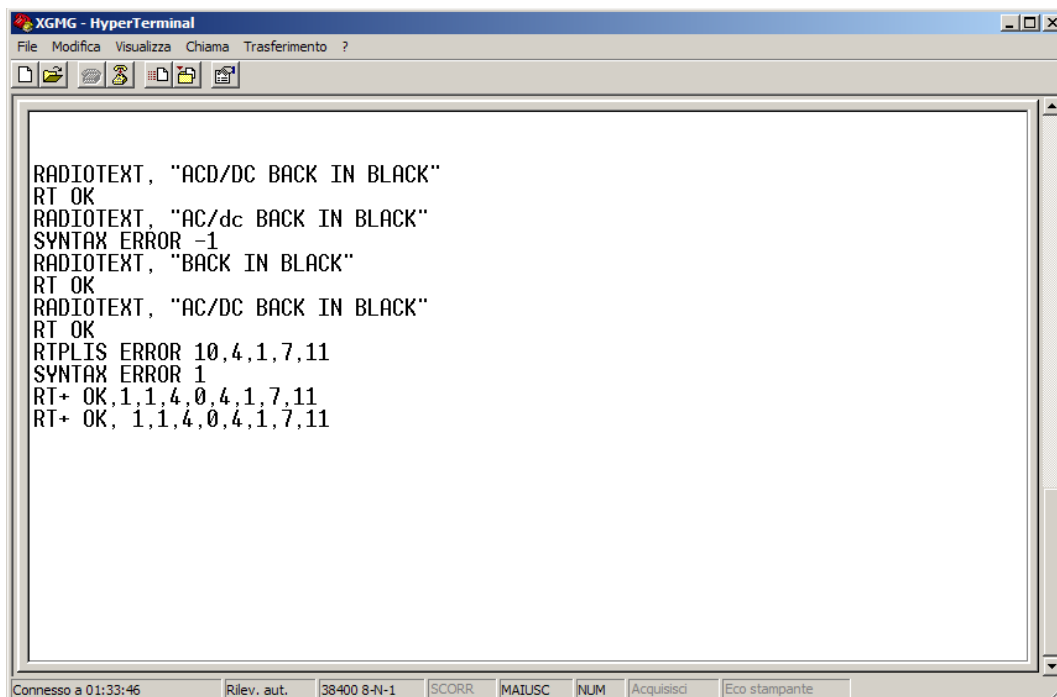
```

Then

RTPLUS,1,1,4,0,4,1,7,11 [RETURN]

The Tiger Shark replies

RT+ OK



```

XGMG - HyperTerminal
File Modifica Visualizza Chiama Trasferimento ?
RADIOTEXT, "ACD/DC BACK IN BLACK"
RT OK
RADIOTEXT, "AC/dc BACK IN BLACK"
SYNTAX ERROR -1
RADIOTEXT, "BACK IN BLACK"
RT OK
RADIOTEXT, "AC/DC BACK IN BLACK"
RT OK
RTPLIS ERROR 10,4,1,7,11
SYNTAX ERROR 1
RT+ OK,1,1,4,0,4,1,7,11
RT+ OK, 1,1,4,0,4,1,7,11

Connesso a 01:33:46 Rilev. aut. 38400 8-N-1 SCORR MAIUSC NUM Acquisisci Eco stampante

```

43 APPENDIX I - UDP – TCPIP – SNMP – HTTP – NTP PORTS

From Tiger Shark Release 5.9.0 Features list:

UDP full support available in the Tiger Shark Remoter Communication System.

The screenshot shows the 'UDP Connection' configuration window. It has a title bar 'UDP Connection'. Inside, there are two main sections. The left section is titled 'Unidirectional Redundancy' and contains a dropdown menu set to 'No Packet Redundancy'. Below this, there are three radio buttons: 'LOCAL RS 232', 'MODEM', and 'UDP', with 'UDP' being selected. The right section is titled 'UDP' and contains a 'Group Name' dropdown set to 'Default Group', a 'Target Name' dropdown set to 'Target 1', and an 'IP' field showing '192.168.000.020:1327' with an 'Edit' button next to it. At the bottom of the right section is a 'Fast Edit' button.

From the release 5.9.0 is available the UDP Unidirectional connection and the LAN Data Base support UDP encoders grouping.

Target Address manager with TCP/IP support.

The screenshot shows the 'Target Address manager' interface. It has a title bar. The main area is divided into several sections. On the left, there's a 'Tcp/Ip' section with an 'IP Address' field showing '192 . 168 . 000 . 020' and a 'Port' field showing '1327'. To the right of this is a large 'Connect to Target' button with a right-pointing arrow. Below the 'IP Address' field, there's a 'Target ID' field showing 'T-SHARK'. To the right of the 'Target ID' field, there are two buttons: 'Reset All Target Data' and 'Reset DataSet 1'. The 'Reset All Target Data' button has a small icon of a document with a red 'X' over it. The 'Reset DataSet 1' button has a small icon of a document with a red 'X' over it and the text 'DS1' next to it.

Target Address III supports now remote encoders addressing configuration in TCP/IP. It's now possible change every configuration data remotely (even the main IP Address) through TCP/IP.

Improved the Configuration setup speed in all unidirectional communications:

All six datasets are configurable in about 20 seconds against 35 seconds required in the previous releases.

Added four UDP ports intended for a general purpose UECP unidirectional communications.

- UDP Port **15001** available for UECP, ODA STREAMS and/or Remoter Communication.
- UDP Port **15002** available for UECP, ODA STREAMS and/or Remoter Communication.
- UDP Port **15003** available for UECP, ODA STREAMS and/or Remoter Communication.
- UDP Port **15004** available for UECP, ODA STREAMS and/or Remoter Communication.

Extended the ASCII parser syntax on the UDP Port 15000. Now it is possible complete every ASCII command with a couple of UECP Addresses (Site Address, Encoder Address) allowing the same addressing UECP flexibility.

Examples:

Radio Text

keyword:	RADIOTEXT
parameters:	<string of chars (max 64)>,<SiteAddr>(optional),<EncoderAddr>(optional)
answer:	RT OK

Examples:

RADIOTEXT, "text of max 64 chars",2,23 ↵

RADIOTEXT, "text of max 64 chars" ↵

Select active dataset

keyword:	DATASET
parameters:	DataSet number (1 to 6),<SiteAddr>(optional),<EncoderAddr>(optional)
answer:	DS OK

Example for dataset 1:

DATASET, 1 ↵

DATASET, 1 , 2, 23 ↵

If the SiteAddress or the Encoder Address aren't specified every encoder will execute the command.
With a full old syntax compatibility is now possible subdivide all encoders in groups with the same UECP addressing logic.

From the release 5.9.0 Tiger Shark are available a total of 9 LAN Ports:

- 1 port TCP/IP (UECP),
- 1 port UDP (ASCII Parser),
- 4 UDP (UECP) ,
- 1 SNMP,
- 1 HTTP,
- 1 NTP

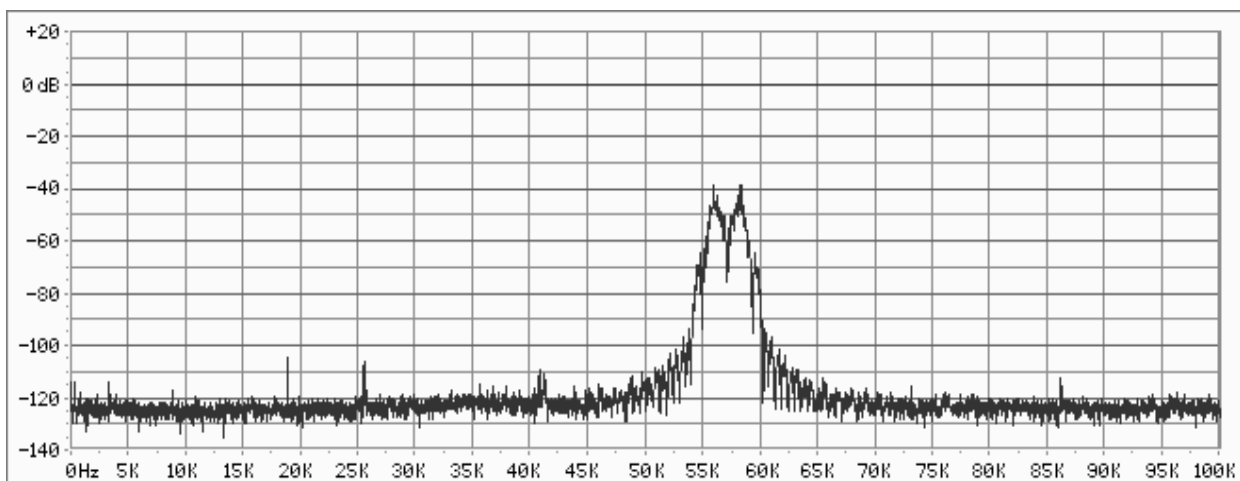
- 1 TCP/IP Port (configurable address) : Mono/Bidirectional UECP Communication
- 1 SNMP Port (Address 161): Multiple and Parallel Bidirectional Encoder Communication
- 1 UDP ASCII port (Address 15000): Multiple and Parallel Unidirectional Communication using the ASCII parser syntax.
- 4 UDP GP ports(Addresses 15001..15004): Multiple and Parallel Unidirectional Communication using UECP
- 1 HTTP port : Web Server.
- 1 NTP port (configurable address): Internal clock synchronization

43.1 BUG FIX

Fixed a software a bug related the Port3 Setup and the LAN connection. Some abnormal behaviors related to the extended Port3 and the LAN connectivity are solved fixing a communication software bug.

43.2 EXCELLENT RDS ANALOGIC SIGNAL QUALITY

Tiger Shark exhibits a a top quality analogical signal quality. We want to remind that after solved all communication problems the real important key is the signal quality on air which allows the widest receiver coverage.



44 APPENDIX L – DESCRIPTION OF SNMP - MIB

Tiger Shark Full or RDS features a SNMP agent that manages a list of parameters and data described in the MIB. Those parameters and data can be explored or executed by SNMP Manager. Data are described and grouped into a MIB (Management Information Base), that can be represented as a tree:

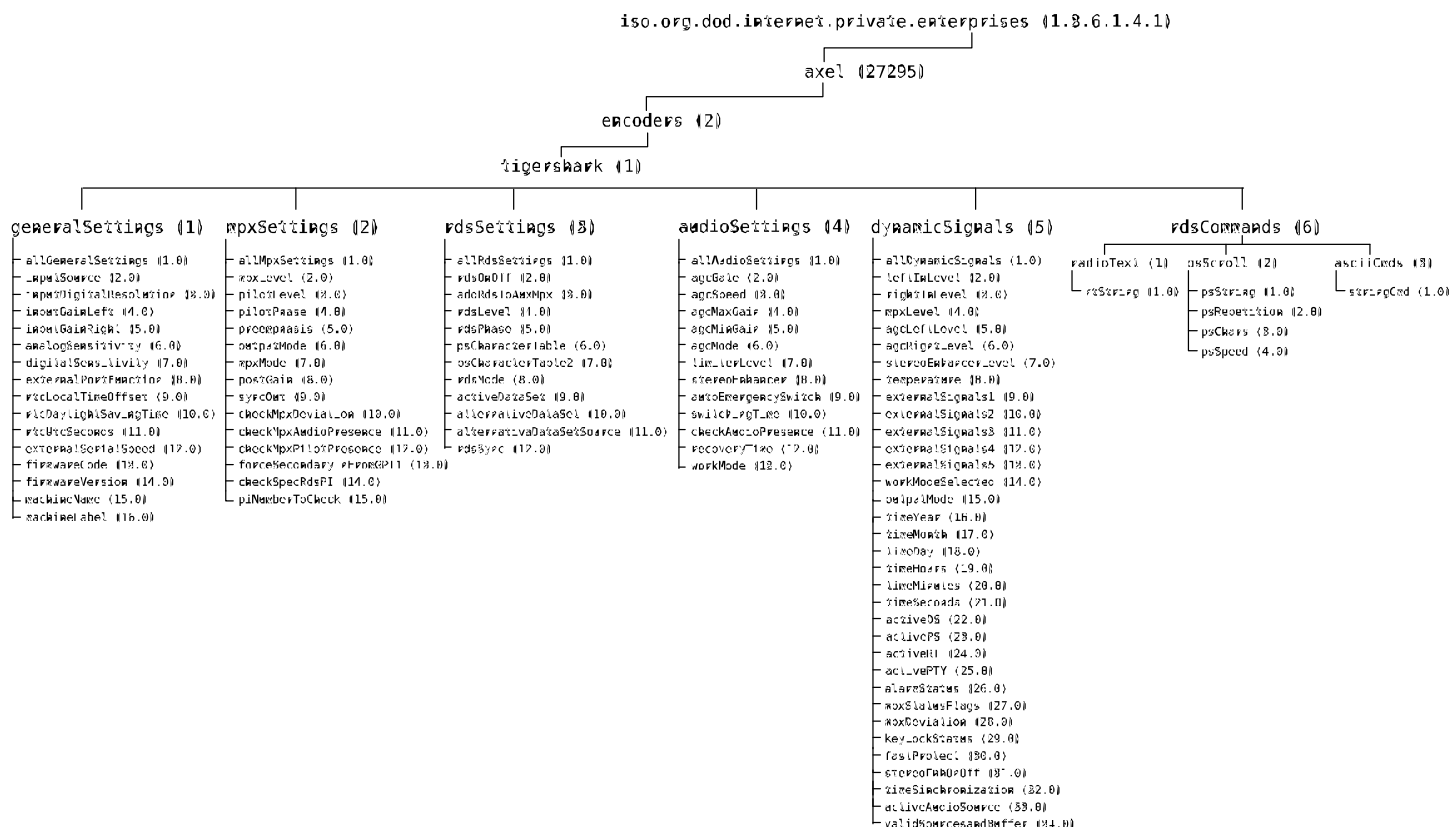


Fig.1 - MIB Tiger Shark

OIDs (Object Identifiers) are reachable beginning from level **1.3.6.1.4.1.27295.2.1** of MIB.

Here below follows a short description of Tiger Shark MIB, with both literal and numerical notation (between round brackets), it can be summed up in six well-defined nodes:

- generalSettings {Tiger Shark 1}
- mpXSettings {Tiger Shark 2}
- rdsSettings {Tiger Shark 3}
- audioSettings {Tiger Shark 4}
- dynamicSignals {Tiger Shark 5}
- rdsCommands {Tiger Shark 6}

A series of OIDs branches off from each node, they describe a data structure which represents and sets the device state in detail. The amount of data available via SNMP involves the generation of several requests done by the system manager to the agent, especially during the observation of some data with a particular type of measure. This situation is not the best in reliability and efficiency: the SNMP protocol uses UDP packets that, for their nature, are not connection-oriented, therefore they are liable to be lost, so they need to be resent. Our solution, in order to minimize the throughput, is to provide, besides the base OIDs in read/write, an OID that bundles the whole data structure of the concerned branch, containing all the available information in read, in order to get the searched data in one UDP packet instead of n-packets carrying a single data of the structure. Here you find attached the .h file that defines the nature of the various data structures. An example of use for the minimization of the throughput is to use the oid "allDynamicSignals" (1.3.6.1.4.1.27295.2.1.5.1.0) in the dynamicSignals branch in order to get all the dynamic data that Tiger Shark provides.

Unlike, if the system requires only the monitoring of some parameters, such as MPX deviation, it is possible to require the only read of the mpXDeviation OID (1.3.6.1.4.1.27295.2.1.5.28.0).

44.1 CONNECTION PARAMETERS TO TIGER-SHARK'S SNMP AGENT

- SNMP version: v. 1.0
- Agent SNMP UDP port: 161
- Default read community: public
- Default write community: private

44.2 SNMP READ/WRITE PASSWORDS

SNMP Read / Write passwords are set from the Configuration Editor tool. See relevant Chapter on PART ONE of this User Manual.

```

[GENERAL_SETTINGS]

TARGET_MODEL=SHARK_MPX/LIM/RDS
FIRMWARE_VERSION=5.0
TARGET_NAME=""
TARGET_LABEL="SHARKMK3"
INPUT_SIGNAL=Analogic
DIGITAL_RESOLUTION=24Bits
LEFT_GAIN=+0.0dB
RIGHT_GAIN=+0.0dB
ANALOGIC_SENSITIVITY=+0.0dBm
DIGITAL_SENSITIVITY=+0.0dBfs
SNMP_WRITE_COMMUNITY_PASSWORD="private"
SNMP_READ_COMMUNITY_PASSWORD="public"
SYSTEM_PASSWORD="" ; up to 8 chars
EXTERNAL_PORT_MODE=Off

[END_GENERAL_SETTINGS]

```

44.3 DEFINITION OF GENERALSETTINGS BRANCH

The generalSettings branch provides a series of OIDs that are accessible in read/write so that we are able to read/write several functional parameters of Tiger Shark. Accessibility for this branch is asymmetric, that is, you can access in writing only to a subset of the available data in reading.

generalSettings 1.3.6.1.4.1.27295.2.1.1

OID	R/W	Description
1.0	R	Octet string dell'intera struttura dati generalSettings (100 bytes). See Appendix B
2.0	R/W	Input Source: 0: Analog 1: Digital 2: MPX (don't care for TigerShark RDS)
3.0	R/W	Input Digital Resolution: 0: 16 bits 1: 24 bits (don't care for TigerShark RDS)
4.0	R/W	Input Gain Left Channel: 0: -12.0 dB 1: -11.9 bB

		... 240: +12.0 dB (don't care for TigerShark RDS)
5.0	R/W	Input Gain Left Channel: 0: -12.0 dB 1: -11.9 dB ... 240: +12.0 dB (don't care for TigerShark RDS)
6.0	R/W	Analog Sensitivity: 0: +15.0 dBm 1: +14.9 dBm ... 240: -9.0 dBm (don't care for TigerShark RDS)
7.0	R/W	Digital Sensitivity: 0: 0.0 dBFs 1: -0.1 dBFs ... 240: -24.0 dBFs (don't care for TigerShark RDS)
8.0	R/W	External Serial Port Function: 0: Disabled 1: GPS Time synchronization 2: ASCII Commands 3: UECP Mode
9.0	R/W	Real time clock: Local Time Offset: ¹ see RTC in UECP specs.
10.0	R/W	Daylight Saving Time: ¹ only positive offset.
11.0	R/W	UTC time: ²
12.0	R	External Serial port Speed: 0: 4800 bps 1: 9600 bps 2: 19200 bps 3: 38400 bps 4: 2400 bps
13.0	R	Firmware code string
14.0	R	Firmware version string
15.0	R	Machine Identifier string
16.0	R	Machine Label string

Note 1:

This value indicates the local time offset and is expressed by the following encode:

MSB				LSB			
7	6	5	4	3	2	1	0
Not used		Sign: 0: + 1: -	Local Time offset expressed in multiples of 30 minutes				

Example:

UTC + 1 h → Offset = 2

UTC – 3 h → Offset = 38

For the daylight saving time setting, it will accept only positive values (bit 5 = 0).

Note 2:

This Value is a 32 bit datum without sign that express the number of seconds in UTC format starting from 01/01/1900. The format reflects what is possible to obtain from a time server SNTP.

Some operating systems, javascript and others, provide this information starting from 01/01/1970, in this case it is necessary to add an offset* in order to report the information found in the destination format for Tiger Shark.

* 2208988800 seconds from 01/01/1900 to 01/01/1970.

44.4 DEFINITION OF MPXSETTINGS BRANCH

Access to data of this area of MIB is only designed to **Tiger Shark** machines in **FULL** configuration. For Tiger Shark in the RDS-only version, the reading of the following OIDs does not produce remarkable data, moreover the writing access does not produce any effect to the regular working of Tiger Shark

mpxSettings 1.3.6.1.4.1.27295.2.1.2

OID	R/W	Description
1.0	R	Octet string dell'intera struttura dati mpxSettings (28 bytes). See Appendix B
2.0	R/W	MPX Level: 0: -9.0 dBm 1: -8.9 dBm ... 240: +15.0 dBm
3.0	R/W	MPX Pilot Level: 0: OFF 1: -25.0 dB 2: -24.9 dB ... 96: -15.5 dB
4.0	R/W	MPX Pilot Phase: 0: -12 deg 1: -11 deg ... 24 +12 deg
5.0	R/W	MPX Preemphasis: 0: OFF 1: 50 uS 2: 75 uS
6.0	R/W	MPX Output Mode: 0: Normal Mode 1: Test Mode
7.0	R/W	MPX Mode: 0: Mono 1: Stereo
8.0	R/W	MPX Post Gain: 0: -6.0 dB 1: -5.9 dB ... 120: +6.0 dB
9.0	R/W	MPX Sync Out: 0: OFF 1: ON
10.0	R/W	MPX Check Deviation: 0: OFF 1: ON
11.0	R/W	MPX Check Audio Presence: 0: OFF 1: ON
12.0	R/W	MPX Check Pilot Presence: 0: OFF 1: ON
13.0	R/W	Force Secondary input from GPI-1:

		0: OFF 1: ON
14.0	R/W	Check specific RDS PI: 0: OFF 1: ON
15.0	R/W	Specific RDS PI number to check: 0x0000 to 0xFFFF

44.5 DEFINITION OF RDSSETTINGS BRANCH

rdsSettings 1.3.6.1.4.1.27295.2.1.3

OID	R/W	Description
1.0	R	Octet string dell'intera struttura dati rdsSettings (22 bytes). See Appendix B
2.0	R/W	RDS On/Off: 0: OFF 1: ON
3.0	R/W	Add RDS to auxiliary MPX: 0: OFF 1: ON
4.0	R/W	RDS Level: [FULL] [RDS only] [0: OFF] [0: 0 mVpp] [1: -43.9 dB] [1: 5 mVpp] [2: -43.8 dB] [2: 10 mVpp] [...] [...] [240: -20.0 dB] [240: 1200 mVpp]
5.0	R/W	RDS Phase: * * see RDS Phase in UECP specs.
6.0	R/W	PS character table select: 0: No Control Characters 1: EBU Latin Based Repertoire 2: EBU Common Core 3: ISO Publication 646
7.0	R/W	PS character table select 2: 0: LATIN 1 (ISO-8859-1) 1: LATIN 2 (ISO-8859-2) 2: CYRILLIC (ISO-8859-5) 3: GREEK (ISO-8859-7) 4: TURKISH (ISO-8859-9) 5: NORDIC LANG. (ISO-8859-10)
8.0	R/W	RDS Mode: 0: UECP Compatible 1: EXTENDED Mode
9.0	R/W	Active Data Set: 1: DATASET 1 2: DATASET 2 3: DATASET 3 4: DATASET 4 5: DATASET 5 6: DATASET 6
10.0	R/W	Alternative DataSet: 0: DATASET 1 1: DATASET 2

		2: DATASET 3 3: DATASET 4 4: DATASET 5 5: DATASET 6
11.0	R/W	Alternative Data Set Source: 0: UECF COMMAND 1: POSITIVE INPUT 1 2: POSITIVE INPUT 2 3: POSITIVE INPUT 3 4: POSITIVE INPUT 4 5: POSITIVE INPUT 5 6: NEGATIVE INPUT 1 7: NEGATIVE INPUT 2 8: NEGATIVE INPUT 3 9: NEGATIVE INPUT 4 10: NEGATIVE INPUT 5 11: EXTERNAL CONTROL
12.0	R/W	RDS Sync: (TigerShark RDS only) 0: External 1: Internal

44.6 DEFINITION OF AUDIOSETTINGS BRANCH

The access to data of this area of MIB is only assigned to **Tiger Shark** machines in **FULL** configuration. For only RDS Tiger Sharks, the reading of the following oids does not produce remarkable data, moreover the writing access does not produce any effect to the regular working of Tiger Shark.

audioSettings 1.3.6.1.4.1.27295.2.1.4

OID	R/W	Description
1.0	R	Octet string dell'intera struttura dati audioSettings (24 bytes). See Appendix B
2.0	R/W	AGC Gate: 0: -18 dBr 1: -12 dBr 2: - 6 dBr 3: - 3 dBr
3.0	R/W	AGC Speed: 0: 0.05 dB/s 1: 0.10 dB/s 2: 0.15 dB/s 3: 0.20 dB/s
4.0	R/W	AGC Max Gain: 0: +0.0 dB 1: +0.1 dB ... 120: +12.0 dB
5.0	R/W	AGC Min Gain: 0: -12.0 dB 1: -11.9 dB ... 120: +0.0 dB
6.0	R/W	AGC Linked: 0: Unlinked 1: Linked
7.0	R/W	Limiter Level: 0: OFF 1: Level 1 2: Level 2

8.0	R/W	Stereo Enhancer: 0: OFF 1: LOW 2: NORMAL 3: HIGH
9.0	R/W	Auto Emergency Switch: 0: OFF 1: Analogic 2: Digital 3: MPX
10.0	R/W	Auto Emergency Time: 0: 1 s 1: 2s ... 119: 120 s
11.0	R/W	Check Audio Presence: 0: Disabled 1: Enabled
12.0	R/W	Switching Time: 0: 5 seconds 1: 5 minutes
13.0	R/W	Work Mode: 0: Linear mode (manual) 1: Linear Full-range (manual) 2: Clipper MPX (manual) 3: Clipper MPX - Safe (Auto) 4: Clipper MPX - Normal (Auto) 5: Clipper MPX - Aggressive (Auto) 6: Log Clipper - Safe (Auto) 7: Log Clipper - Normal (Auto) 8: Log Clipper - Aggressive (Auto)

44.7 DEFINITION OF DYNAMIC SIGNALS DATA STRUCTURE

dynamicSignals 1.3.6.1.4.1.27295.2.1.5

OID	R/W	Description
1.0	R	Octet string dell'intera struttura dati dynamicSignals (64 bytes). See Appendix B
2.0	R	Audio Left In: VUmeter Level: see note 3
3.0	R	Audio Right In: VUmeter Level: see note 3
4.0	R	MPX Level: VUmeter level: see note 3
5.0	R	AGC Left Level: 0: -12.0 dB 1: -11.9 bB ... 120: +0.0 dB ... 240: +12.0 dB (don't care for TigerShark RDS)
6.0	R	AGC Right Level: 0: -12.0 dB 1: -11.9 bB ... 120: +0.0 dB

		... 240: +12.0 dB (don't care for TigerShark RDS)
7.0	R	Stereo Enhancer VUmeter Level: see note 3
8.0	R	Temperature: in Celsius degree
9.0	R	External signals 1
10.0	R	External signals 2
11.0	R	External signals 3
12.0	R	External signals 4
13.0	R	External signals 5
14.0	R	Work Mode Selected: 0: Linear mode (manual) 1: Linear Full-range (manual) 2: Clipper MPX (manual) 3: Clipper MPX - Safe (Auto) 4: Clipper MPX - Normal (Auto) 5: Clipper MPX - Aggressive (Auto) 6: Log Clipper - Safe (Auto) 7: Log Clipper - Normal (Auto) 8: Log Clipper - Aggressive (Auto) (don't care for TigerShark RDS)
15.0	R	Output Mode Selected: 0: Normal Mode 1: Test Mode (don't care for TigerShark RDS)
16.0	R	Target Year: last two digit since 2000
17.0	R	Target Month: 1: January ... 12: December
18.0	R	Target Day
19.0	R	Target Hours
20.0	R	Target Minutes
21.0	R	Target Seconds
22.0	R	Active DataSet
23.0	R	Active PS
24.0	R	Active RT
25.0	R	Active PTY
26.0	R	Alarm Status: 0: Analogic In 1: Digital In 2: MPX In 3: n.a. 4: Analogic In (Emergency) 5: Digital In (Emergency) 6: MPX In (Emergency) (don't care for TigerShark RDS)
27.0	R	MPX status flags: see note 4

		(don't care for TigerShark RDS)
28.0	R	MPX Deviation measure * * expressed in kHz (don't care for TigerShark RDS)
29.0	R	Key Lock Status: 0: Unlocked 1: Locked
30.0	R	Fast Protection (don't care for TigerShark RDS)
31.0	R	Stereo Enhancement: 0: Disabled 1: Enabled (don't care for TigerShark RDS)
32.0	R	Time Synchronization: see note 5
33.0	R	Active Audio Source: bit 0: Analog Source bit 1: Digital Source bit 2: Auxiliary MPX bit 3: ChangeOver Alarm bit 4..7: Reserved
34.0	R	Valid Sources and Buffer Overflow: bit 0: Dynamic Data Buffer Overflow bit 1: Primary Source Valid bit 2: Secondary Source Valid

Note 3:

These data indicate the levels in graphic terms of the input source, and of the MPX level.

Audio In: 0 – 55
MPX In: 0 – 110
Stereo Enhancer: 0 - 30

Note 4:

The bit reading of this oid indicates the auxiliary MPX monitor state. The presence is indicated when the concerning bit is set as 1.

MSB							LSB
7	6	5	4	3	2	1	0
n.a.	n.a.	n.a.	n.a.	MPX Pilot Presence	MPX Audio Presence	MPX Deviation	RDS Ok

Note 5:

OID's bit indicates the Sat synch status and SNTP server.

UECP Sync: Indicates the time sincronization via UECP Command. This bit state comes set at each connection via Standard Uecp command, via Web, via SNMP. It is not set if the sincronization come sets as GPS or SNTP.

GPS Time Sync: set the serial ports qualified to receive data from Sat Synch. A red led show the state in the web interface

GPS Interface: Indicates the Sat Synch presence (Serial data at 4800 bps). A Orange Led show the state in the web interface

GPS SAT Fix: Indicates the Fix with GPS Satellite. In Tiger Shark the Internal time become sincronized at 20° second of each minute. A green Led show the state in the web interface

This bit is usefull to set correctly the Sat Synchronizer. A Orange Led show the state in the web interface

SNTP Resp.: the reply has been received by SNTP Server. From now come sincronized at 40° of each minute. A Green Led show the State in the web interface

MSB							LSB
7	6	5	4	3	2	1	0
n.a.	n.a.	UECP Sync	GPS Time Sync Enabled	SNTP Response Ok	SNTP IP Config Ok	GPS SAT Fix Ok	GPS Presence Ok

44.8 DEFINITION OF RDSCOMMANDS

In this area are available 2 rds commands:

Radio Text 1.3.6.1.4.1.27295.2.1.6.1

This oid accept a string up to 64 types.

The oid reading does not reflect the RT broadcasted at the present, but only the string previously sent by SNMP.

The set produces immediately the change in the RT broadcasted.

OID	R/W	Description
1.0	R/W	Radio Text String: 64 characters max

psScroll 1.3.6.1.4.1.27295.2.1.6.2

This oids sequence allows to set the custom PSScroll command.

As in the UECP command, it is necessary to set the following parameters before:

- .Repetitions.
- .Number of characters
- .Speed

The broadcast happens immediately after setting the string related to oid psString (1.0).

Even for this parameter the reading of the psString does not reflect the PS broadcasted at the present.

OID	R/W	Description
1.0	R/W	PS Scroll string: 64 characters max
2.0	R/W	psRepetition: 0: No repetitions 1: 1 repetition 2: 2 repetitions 3: 3 repetitions 4: 4 repetitions 5: 5 repetitions 6: 6 repetitions 7: 7 repetitions
3.0	R/W	psChars: 0: 1 character 1: 2 characters 2: 3 characters 3: 4 characters
4.0	R/W	psSpeed: 2: slower 3: normal 4: faster

AsciiCmds 1.3.6.1.4.1.27295.2.1.6.3

This OID allows to send via SNMP an ASCII command, using the protocol shows in the Appendix G (before this one)

OID	R/W	Description
1.0	W	ASCII string: see appendix A for details.

16.9 Description of Data Structure Read-Only contained in the MIB 1.5

Below comes described the data structure contained in the single Tiger Shark MIB's OID.

The main type are divided into:

WORD, 2 byte lenght, no sign – little endian

ULONG, 4 byte lenght, no sign – little endian

char[n], strings di n bytes with termination

GeneralSettings

```
{
WORD Inp_source;
WORD Inp_digital_res;
WORD Inp_Gain_L;
WORD Inp_Gain_R;
WORD An_Sens;
WORD Dig_Sens;
WORD Ext_Port_Funct;
WORD LocalTimeOffset;
WORD DayLightSaveTime;
ULONG Last_UTC_Sync; // * see note
WORD SerialSpeed;
char FW_Code[14];
char FW_String[7];
char MachineName[40];
char MachineLabel[9];
WORD Reserved0;
```

WORD Reserved1;

WORD Reserved2;

}

* indicates the time of the latest synchronization via SNMP in the OID11

MPXSettings

{

WORD Mpx_Level;

WORD Pilot_Level;

WORD Pilot_Phase;

WORD Preemph;

WORD Out_mode;

WORD Mpx_mode;

WORD Post_gain;

WORD Sync_out;

WORD Check_deviation;

WORD Check_audio_presence;

WORD Check_pilot_presence;

WORD Check_rds_MPX

WORD Check_RDSPI;

WORD PI_to_check;

}

RDSSettings

{

WORD Rds_on;

WORD AddRDS_auxMPX;

WORD Rds_level;

WORD Rds_phase;

WORD PS_char;

WORD PS_char2;

```
WORD Rds_mode;  
  
WORD Active_dataset;  
  
WORD Alt_DataSet;  
  
WORD Alt_dataset_on;  
  
WORD Rds_sync;  
  
}
```

AudioSettings

```
{  
  
WORD AGC_gate;  
  
WORD AGC_speed;  
  
WORD AGC_maxgain;  
  
WORD AGC_mingain;  
  
WORD AGC_mode;  
  
WORD Limiter_lev;  
  
WORD Stereo_enh;  
  
WORD Auto_switch;  
  
WORD Em_time;  
  
WORD Mask Audio Errors;  
  
WORD Recovery time;  
  
WORD Work_mode;  
  
}
```

DynamicSignals

```
{  
  
WORD LeftIn;  
  
WORD RightIn;  
  
WORD MpxLev;  
  
WORD AgcLeft;  
  
WORD AgcRight;  
  
WORD StereoEnh;
```

```
WORD Temperature;  
  
WORD ExtSignals1;  
  
WORD ExtSignals2;  
  
WORD ExtSignals3;  
  
WORD ExtSignals4;  
  
WORD ExtSignals5;  
  
WORD WorkMode;  
  
WORD OutMode;  
  
WORD Target_Year;  
  
WORD Target_Mont;  
  
WORD Target_Day;  
  
WORD Target_Hr;  
  
WORD Target_Min;  
  
WORD Target_Sec;  
  
WORD Active_DS;  
  
WORD Active_PS;  
  
WORD Active_RT;  
  
WORD Active_PTY;  
  
WORD Alarm status;  
  
WORD MPX_Status_flags;  
  
WORD MPX_deviation;  
  
WORD Key_lock_status;  
  
WORD FastProt;  
  
WORD SE;  
  
WORD Time_sync;  
  
WORD Active_Audio_Src;  
  
WORD validSourcesandBuffer;  
  
}
```

45 APPENDIX M – ETHERNET BOARD IN TIGER SHARK

It is possible to install in equipment Tiger Shark LITE and Tiger Shark –RDS LITE a Ethernet port that allows the user to establish LAN or WAN connection over a standard catx cable, some preliminary consideration must be done before:

45.1 PRELIMINARY CONSIDERATIONS

1.It is possible to install the Ethernet option board, where it is not installed over the following equipment

CODE	MODEL	DESCRIPTION
A107030002	T-SHARK-LITE	Digital stereo & RDS coder, stereo enhancer, AGC and lookahead limiter. UECP compliant. Analog and AES/EBU IN. Audio IN changeover. 6 Datasets. ODA, TMC, IH. Scheduler. GPI. Relay OUT. Remote control. Automation and GPS interface
A107030003	T-SHARK-RDS-LITE	Digital RDS coder. 6 Dataset. UECP. ODA, TMC, IH, RT, RT+. Scheduler PS, RT, PTY. 4 GPI, 4 Relays. Software for PC control.

2. To upgrade the owned equipment, must be required the Ethernet optional board to the Axel Technology's sales department, or to support department. Contacts are reported below, the board is coded as following

CODE	MODEL	DESCRIPTION
A107030304	TSK-ETH	Ethernet interface, Web Server, SNMP. Radio automation and GPS interface (Sat Time Synchronizer) for DGPS sync service. Option available for LITE model only.

3.Once the Ethernet board has been received it is possible, by following the above procedure, to install the Ethernet option, and upgrade the Tiger Shark equipment.

45.2 INSTALLATION PROCEDURE – ETHERNET BOARD

By following this procedure it is possible to install the Ethernet option on the Tiger Shark –LITE equipment. The installation is divided in two parts:

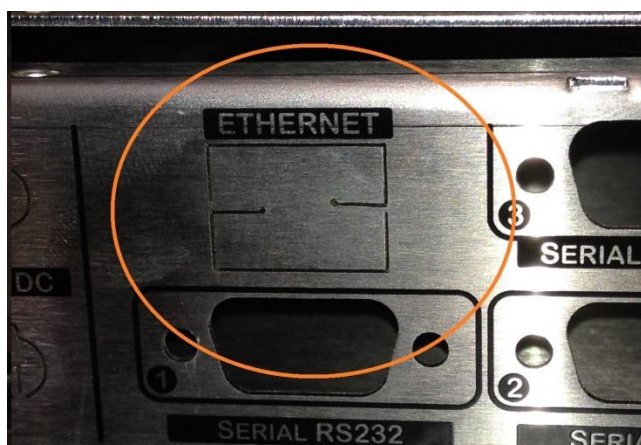
- Part-1: Mechanical Upgrade
- Part-2: Firmware Upgrade
- Part-3: Software Upgrade

45.3 PART-1: MECHANICAL UPGRADE

1. Execute a backup of all the Tiger Shark settings BEFORE execute this upgrade. The procedure is available at CHAPTER 21 and following chapters, or press [HERE](#) to jump directly.
2. ONLY once the backup has been done, it is possible to go on. Disconnect the equipment from power supply cord and other connected cables, open the 6 upper screws and the 4 lateral screws as per figure



3. Remove the iron Ethernet cover



4. To help removing the Ethernet cover, use a flat screwdriver

!! Use the maximum carefull doing this operation to avoid damages to other boards installed into the equipment !!



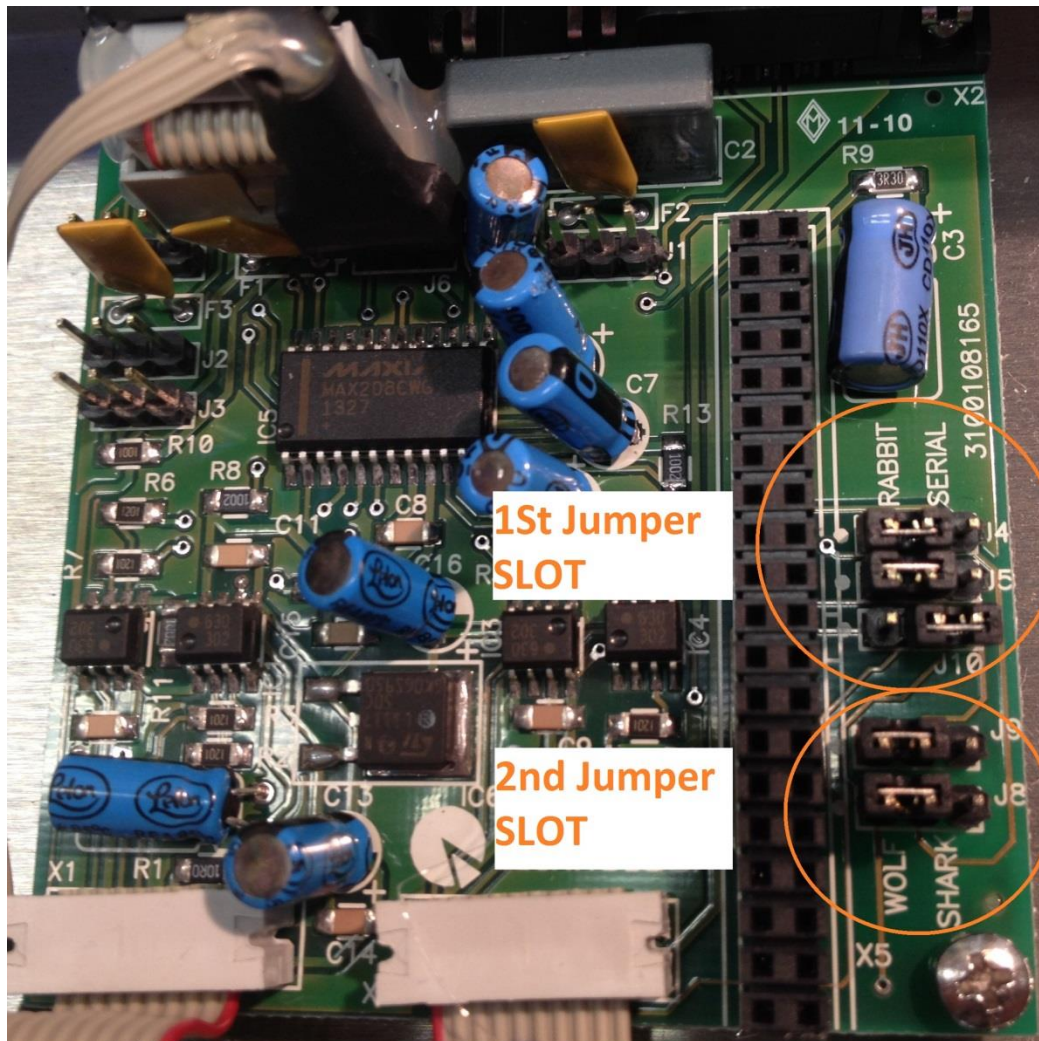
5. Use fingers to help removing the little Ethernet iron cover



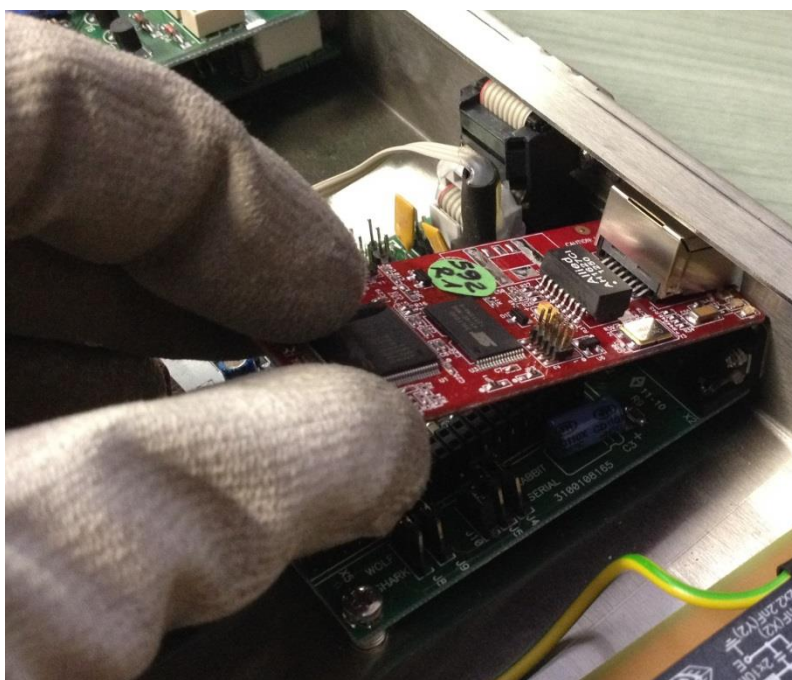
6. Once the Ethernet iron covers is removed, check the Jumper position on Serial Board. The Tiger Shark LITE jumper settings on a Serial Board is different than a Tiger Shark LITE with Ethernet option. Please refer to the picture below in order to set the jumper in the correct settings. The jumper correct position for a Tiger Shark LITE with Ethernet option board is:

Jumper N°	Position/Label on PCB
1st Jumper SLOT	
J4	RABBIT
J5	RABBIT
J10	SERIAL
2nd Jumper SLOT	
J9	WOLF
J8	WOLF

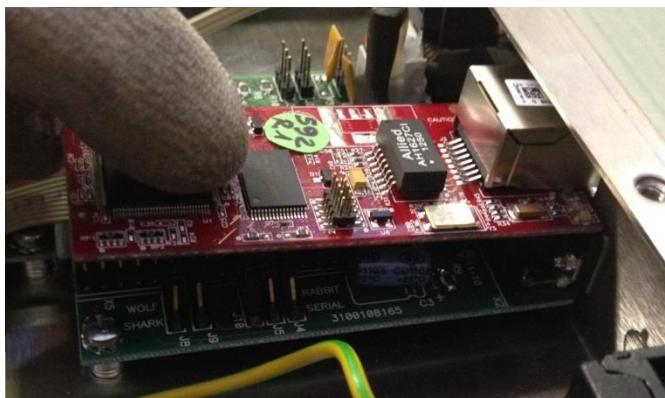
Or follow the picture above:



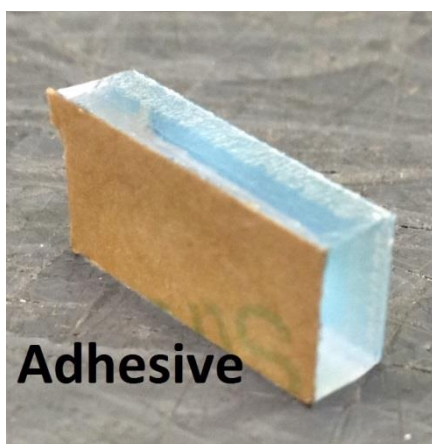
7. Open from the plastic bag the Ethernet board and install it into the correct slot. By using an electrostatic glove, insert the Ethernet board into the slot, taking attention to don't force the board leads. Move the Ethernet board completely out with the RJ45 just out the iron cover, and the rear part just a little bit moved up.



8. Then insert the first leads in correct slot and then insert the remaining leads, carefully apply force to insert all the leads in the correct place. Please check that the leads don't touch on condenser or on ground.



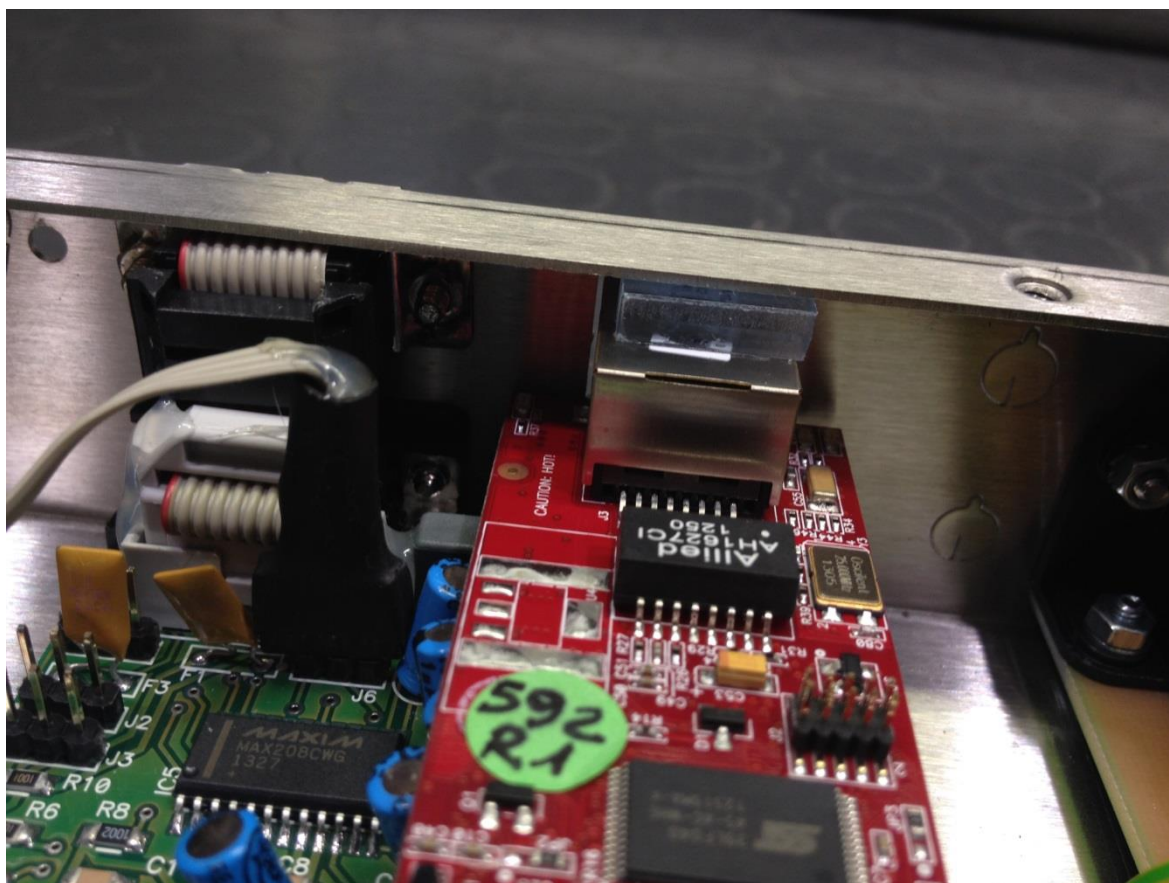
9. Once the Ethernet port has been inserted, the Ethernet port must be mechanically fixed to the chassis. To achieve that, into the kit has been provided a small plastic block. This one must be inserted between the RJ45 and the chassis.



10. Now insert the plastic block with the adhesive side versus the RJ45 connector



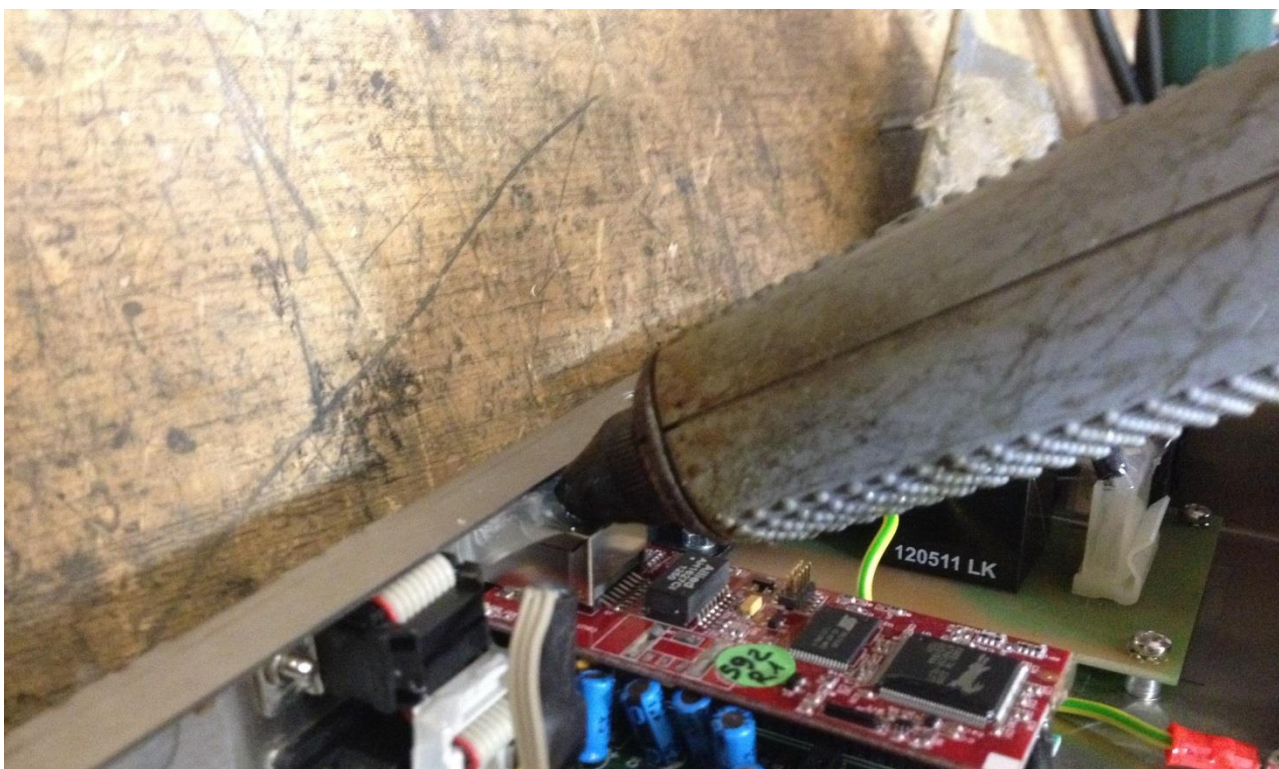
11. Once the plastic block has been inserted, the condition in the picture below must be reached.



12. It is suggestable to fix the Ethernet board using a small quantity of hot glue, directly over the RJ45 connector by reaching also the Tiger Shark chassis, and over the lead of the Ethernet board



13. Hot glue on RJ45 connector and plastic block to increase the mechanical strength



14. This is how the glue have to be applied over the RJ45 connector, the glue must reach the equipment chassis as per picture below



45.4 PART-2: FIRMWARE UPGRADE

Once the Part-1 about the mechanical insertion of the Ethernet board has been done, it is possible to upgrade the Tiger Shark firmware and then the PC software. The procedure below shows how to upgrade first of all the firmware and then the software. The upgrade/update procedure for Tiger Shark is available at chapter 39, but here it is possible to find the same procedure to make the works easy to the operator.

45.5 FIRMWARE UPGRADE

When required, the firmware can be updated with the latest available version. In order to upgrade the processor, please follow this procedure:

FW Upgrade can be performed on Windows environment, Windows XP and Windows 7 are supported.



After an initialization of the device (firmware upgrade), all user presets and adjustments may be erased and/or overwritten by the new factory setup! Please save the current configuration by means of the Configuration Editor tool prior to proceeding with the firmware upgrade.



As general rules, when upgrading the firmware, do not forget to install the new associated software version of PC remote control. There is a direct correspondence between the firmware and software versions.
For example, the FW rel. 5.8 LITE inside the Tiger Shark requires the Software version 5.8 LITE installed on the unit and vice versa.

But starting from Firmware rel 5.8.0 it is also possible to use software rel higher with FW rel until 5.8.0. Well, a FW Rel 5.8.0 works perfectly with a SW rel 5.9.4

45.5.1 MAKING THE UNIT READY FOR UPGRADING

- A) Shut off the unit
- C) Set the switch on the front panel to **ON** (right position) (see highlighted switch in the picture).



R) Connect the Tiger Shark front or back **SERIAL** port **1** to that of the Host PC. Please insert (or remove) the serial connector only with processor turned off. A regular (i.e. not crossed) cable is required. It is also possible to use a USB-COM converter as Manhattan PL-2303 that converts the USB into a Standard port com. Some new laptop and desktop pc's are not provided with COM ports.

- S) Turn the unit on.
- T) Make sure Emergency Led on the front panel blinks (front panel display will be empty)

45.5.2 PC OPERATION

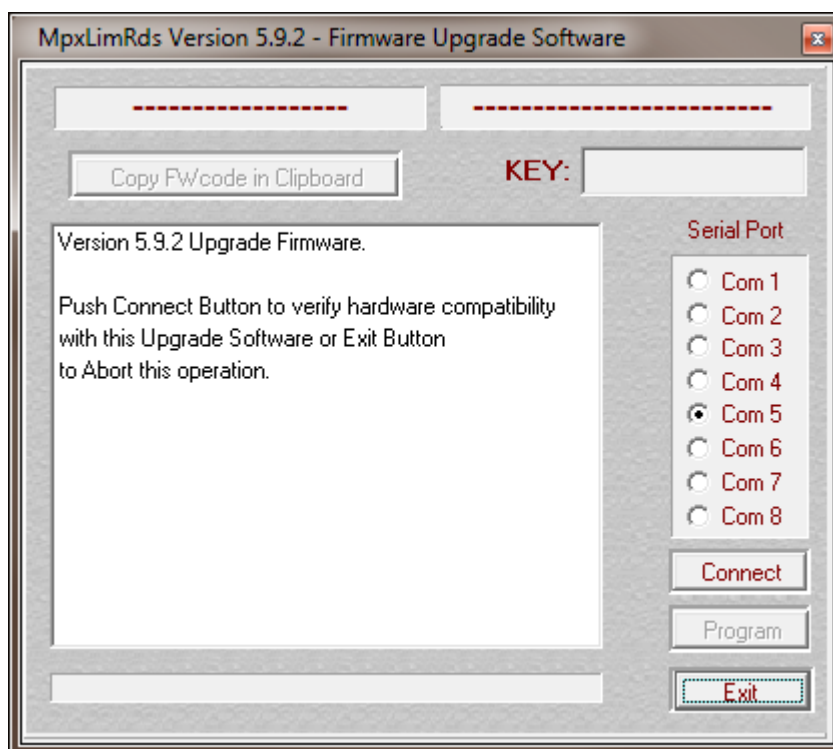
U) Close all opened applications on the PC. !! Such as Outlook, Skype or Internet options. During upgrade the PC must be unused by other operation or task or human control.

- V) Access the **Fw UpGrades** inside the CD provided with the upgrading kit.
- W) Double click the **file associated to the desired upgrade:**

a. **TigerShark_V592_Full_Upgrade**

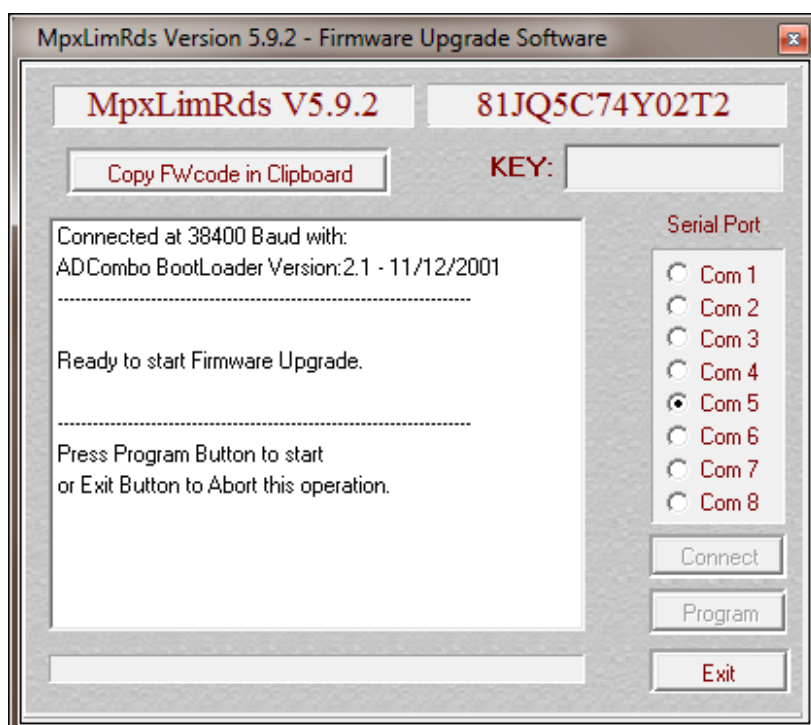
NB: to make sure of current version of Yr Tiger Shark, please check the Firmware Version page from the System Information menu.

The following screen will be displayed:



X) Select the **PC serial port** on the screen

Y) Click **Connect** button.

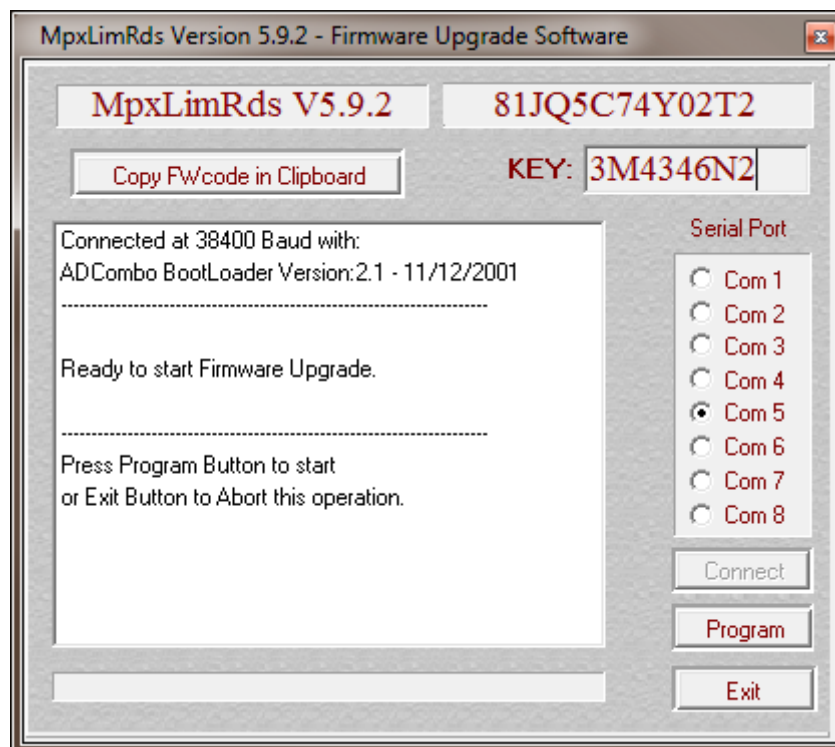


Z) Make sure the Identification is correctly done (Ready to start Firmware Upgrade message + firmware code displayed in the right field)

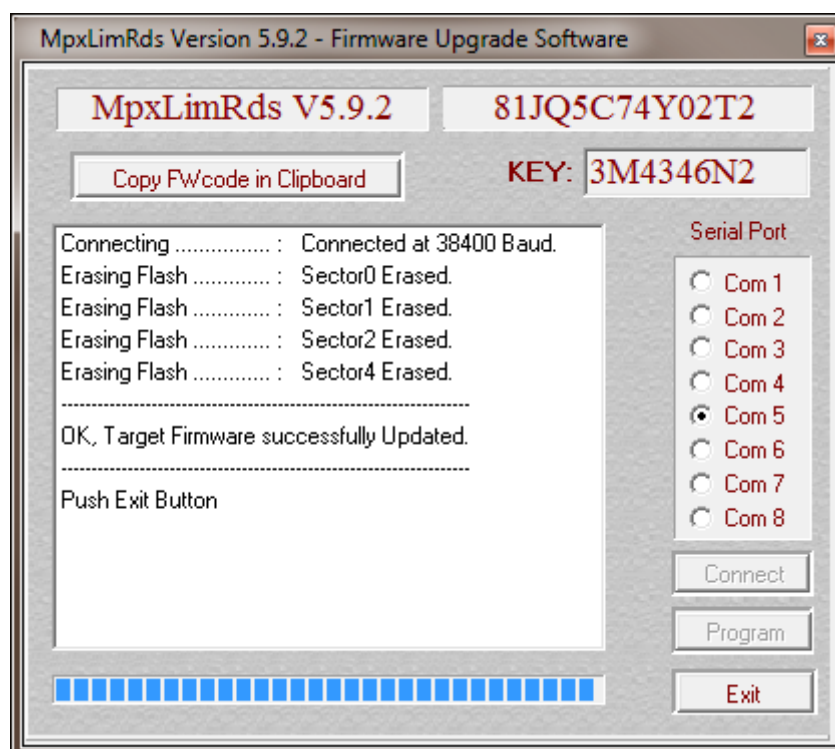
AA) Provide to Axel Technology the firmware code, so we can provide the KEY to upgrade the Tiger Shark. The FW code is in the left side of the upgrader software, in the picture below: 81JQ5C74Y02T2

BB) Send this code via email or phone to Axel Technology and we provide immediately the KEY code, that allows the unit to be updated. Is it also possible to COPY FW code in CLIPBOARD and then email it to support@axeltechnology.com

CC) Insert the provided Key code into the box KEY. In this case the code is 3M4346N2 (THIS IS ONLY AN EXAMPLE, DON'T USE THIS CODE BUT ASK TO AXEL TECHNOLOGY BEFORE!!). Once the code has been inserted the PROGRAM button appears.



DD) Press PROGRAM and leave the software run, don't touch the PC until the upgrading has been finished.



EE) When the upgrade has been done, press EXIT. It is preferable to don't touch or execute other operation into the upgrading PC while the upgrade is in progress. Sometimes the software seems to be freeze, but it is still working. Don't shut down the PC or disconnect the COM cable until the Tiger Shark Display comes back with TIME and WARNING light turns off.

FF) Shut down the Tiger Shark, move the upgrading switch back to OFF and restart the Tiger Shark.

45.6 PART-3: SOFTWARE UPGRADE

Same procedure is explained in chapter 13, but to easy the upgrade operations it is also reported here. When required, the software inside your PC to setup, and program Tiger Shark can be updated with the latest available version.

Software upgrade can be performed on Windows environment, Windows XP and Windows 7 are supported.

Before install the new software Tiger Shark Remoter, please create a copy of the older folder of Tiger Shark Remoter. Moreover, it is suggest able to create a copy of all the managed connections, via Serial or TCP/IP as per picture below.



The screenshot shows the configuration window for the Tiger Shark Remoter. It has several tabs: UNIDIRECTIONAL, BIDIRECTIONAL REQUESTED RESPONSE, BIDIRECTIONAL SPONTANEOUS RESPONSE, LOCAL RS 232, MODEM, TCP/IP, and UDP. The TCP/IP tab is selected. It contains fields for Group Name (Default Group), Target Name (TigerShark Emul), and IP (192.168.099.139:1327). There are also buttons for 'Edit' and 'Fast Edit'.

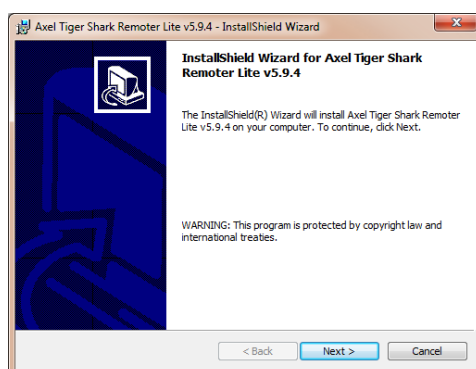


MAKE SURE A TIGER-SHARK REMOTER PROGRAM IS NOT ALREADY INSTALLED on Your computer.

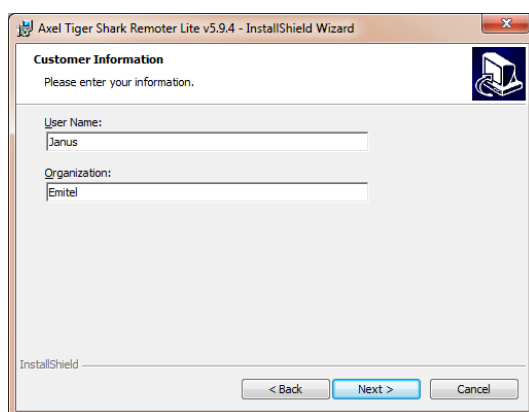
By passing from Sw rel 5.6.2 to the 5.9.4 the older Tiger Shark remoter must be removed from your PC. Please use windows controls to remove the older version. From release 5.8.0 it is possible to use the same Axel Tiger Shark Remoter with different release.

Stop all the applications currently running on the Pc

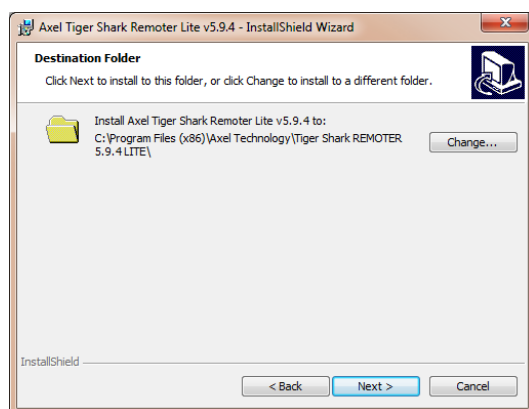
Double click the **setup.exe** file in the 'Pc Control Software' folder – click Next



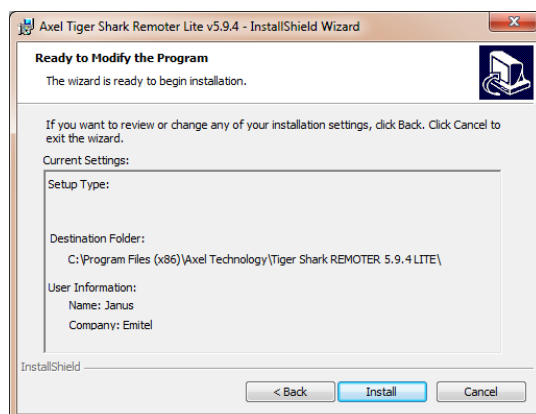
On Windows 2000, XP and Win7, the customer information screen is displayed. In the fields provided type in your User Name and your Organization (optional) . Click on either the **Anyone who uses the computer** (all users) or **Only for me** radio button and click **Next** to continue.



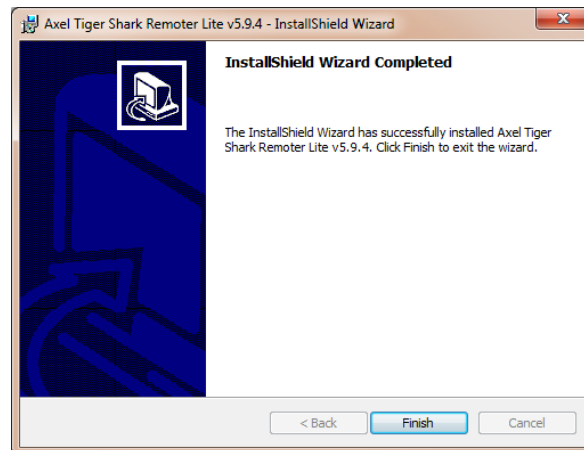
The Setup Type screen is displayed. Maintain the **Recommended** setting and click **Next** to continue



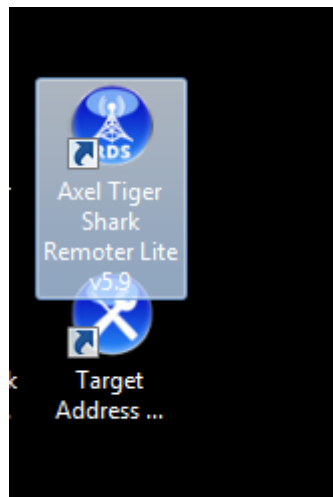
The Ready to Install the Program screen is displayed. Click **Install** to start the installation update. At this point, a status window displays the installation progress of the software.



When finished the InstallShield Wizard Complete screen is displayed. Click Finish to complete the installation. The Tiger Shark remoter software runs from the 'Programs' folder. Alternatively, it can be accessed from the associated Shortcut on the desktop.



Two new icons are created on the desktop



Now it is possible to upload the TCF backup settings files inside the upgraded Tiger Shark equipment. Check the relevant chapter on how to upload a configuration file TCF inside a Tiger Shark.